AVIATION WEEK

AUG. 28, 1950

$6.00
A YEAR

A McGRAW-HILL PUBLICATION

ask the men who KNOW
L-M high intensity runway lighting

Men who know are high in their praise of L-M runway lighting, with its high intensity controllable beam that gives extreme penetration and a minimum of glare. Airline men, pilots, and airport managers can tell you from their own experience the importance of good delineation of runways in all kinds of weather. Ask some of the men who know. Then ask the L-M Field Engineer for complete information, or write Airport Lighting Division, Line Material Company, East Stroudsburg, Pennsylvania (a McGraw Electric Company Division).

Bill Eckenrod at Chattanooga KNOWS!

"Because of the mountainous terrain surrounding Chattanooga, we have had a very great need for high intensity runway lights to implement ILS in bringing aircraft into Lovell Field in inclement weather," writes W. E. Eckenrod, well-known manager of Chattanooga's municipal airport.

"The first night these lights were turned on, airline pilots were unanimous in their approval, and their comments could be summed up by this remark to the control tower: 'This is what Chattanooga has always needed!'"

John Casey at Chicago KNOWS!

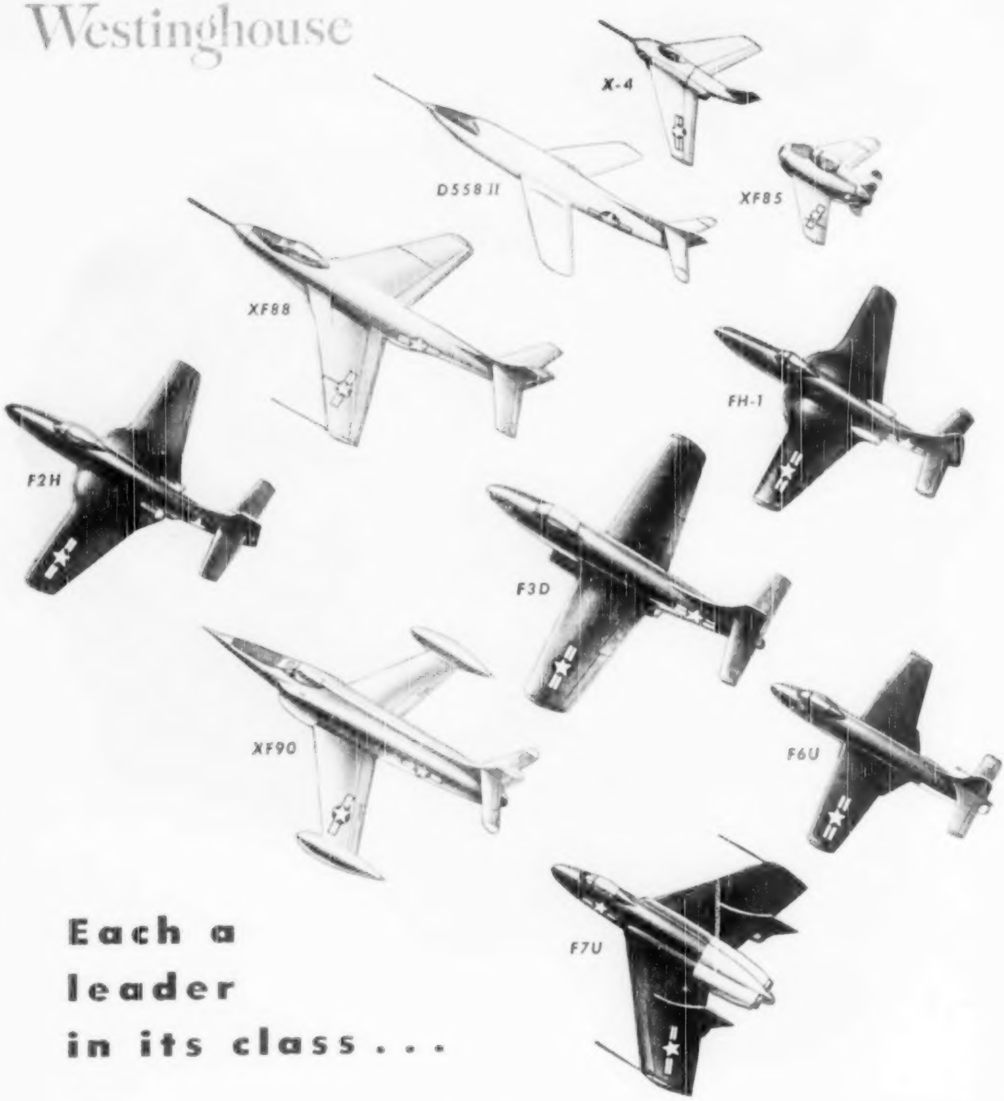
Chicago's big Midway Airport is one of the busiest in the world. And John A. Casey, its manager, is a leader in progressive airport operation. He knows how important it is to avoid delays in landings and take-offs. Mr. Casey says: "The installation of the high intensity runway lights at Chicago Midway Airport in 1948 was the missing link in the completion of the chain of landing aids used under conditions of restricted visibility. The high intensity runway lights are a perfect implementation of the ILS and GCA. All comment has been extremely favorable, with not one complaint."

Bob Neblett at Jackson KNOWS!

"We've had some unusual experiences here with our high intensity runway lighting," writes Bob Neblett, manager of Hawkins Field, Jackson, Mississippi's municipal airport. "We've brought some ships in through weather that we didn't think any lights could penetrate. To me, the extreme high intensity, without glare, is a most important feature of these lights. And it's the controllable beam that makes it possible."

L-M's famous high intensity runway light—with the controllable beam that assures maximum penetration under near-minimums—without glare! That's why L-M lights more runways than all other high intensity systems combined!

LINE MATERIAL . . . Airport Lighting


YOU CAN BE SURE.. IF IT'S
Westinghouse
X-4
D558 II
XF85
XF88
FH-1
F2H
F3D
XF90
F6U
F7U
Each a leader in its class . . .
all powered by
Westinghouse
AVIATION GAS TURBINES

B.F.Goodrich

World's biggest bomber switches to B. F. Goodrich brakes

ON AUGUST 5 the world's largest bomber took off and landed for the first time on B. F. Goodrich wheels and brakes. This was the first of the B-36s now on order at the Fort Worth Division of Convair which will be B. F. Goodrich equipped.

The switch by the B-36 is another step in the trend of large aircraft to B. F. Goodrich Expander Tube brakes. There are good reasons for the trend. The basic design of BFG brakes saves weight, gives maximum braking power, reduces maintenance, prolongs life.

And several new features have been added. The new BFG brake block design—with lining *cemented* on magnesium shoes—is stronger, lighter, and increases the amount of usable lining. The new narrow cavity expander tube provides greater braking pressure, yet requires less fluid. The new spider-type frame is both lighter and stronger.

BFG brakes can be designed lighter, for a given amount of kinetic energy, than any other brake. Their full-circle braking action slows down and spreads wear. The brake cannot lock or grab. Maintenance is quick and easy because many extra parts found in other brakes are eliminated. Relining calls for only a screwdriver and wrench.

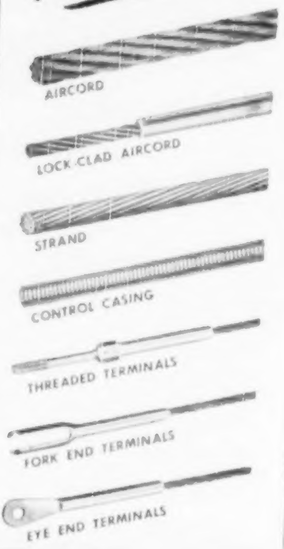
Today's B. F. Goodrich brake is the result of constant research by BFG engineers. Why not put them to work on your problems? Write *The B. F. Goodrich Co., Aeronautical Division, Akron, Ohio.*

B.F. Goodrich

FIRST IN RUBBER

With men who specify aircraft controls...

Today it's Roebling!



FOR WIRE CORD AND STRAND, Roebling is the oldest name in aviation. The plane that made history at Kitty Hawk was Roebling equipped. And from that day, Roebling aircraft products have kept pace with aviation's spectacular advance.

Roebling aircraft products are made in a full range of sizes and constructions, and meet the most stringent specifications. Cord can be furnished in stock lengths or in complete assemblies . . . fittings are available for every requirement.

Write for catalog material and full information on Roebling products . . . every one topflight for sure, safe control. Aircord Division: John A. Roebling's Sons Company, Trenton 2, New Jersey.

ROEBLING
A CENTURY OF CONFIDENCE

Aviation Week

ABP Member ABC

Volume 53 August 28, 1950 Number 9

Headline News

New Orders Coming for Tactical Planes . . 12
Australia Builds British Designs 14
Props On Top 14
Airlift Demand On Carriers Is Lower . . 15
What's Ahead In Congress 16

Aviation Sales & Service

New Lear Autopilot for Lightplanes . . . 17

Financial

'Shelter' vs. Excess Profits Taxes 18

Equipment

Airlines Buying Dural Propellers 21

Aeronautical Engineering

Trainer Competition 26
France Pushes Plane Production 31

Production

Plenty of Aircraft Aluminum Seen 35

Air Transport

Passenger Reaction to Turboprop 39
Carrier Reports 41

Editorial

Mr. Ryan and His Voting Record 50

Departments

Picture Page 7
Aviation Calendar 8
News Digest 9
Who's Where 11
Industry Observer 11
Briefing for Dealers 17
New Aviation Products 24
Shortlines 43
CAB Schedule 45
What's New 46

Robert H. Wood
EDITOR

Merlin H. Mickel . . . . MANAGING EDITOR

William Kroger . . . . Assistant Managing Editor
Alexander McSurely . . . . Assistant Managing Editor
Irving Stone . . . . Technical Editor
Charles L. Adams . . . . Technical Editor
Ben Lee . . . . Technical Editor
G. L. Christian, III . . . . Equipment & Maintenance
David A. Anderton . . . . Engineering
Katherine Johnsen . . . . Congress
Henry Lefer . . . . News Desk
Victoria Giaculli . . . . Editorial Assistant
Marie Adams . . . . Editorial Assistant
Scott H. Reiniger . . . . Editorial Assistant
Erwin J. Bulban . . . . Special Assignments
Peter Munves . . . . Editorial Makeup
Thomas M. Self . . . . Los Angeles

Executive and Editorial Offices: 330 West 42nd St., New York 18, N. Y., Phone Longacre 4-3035; National Press Bldg., Washington 4, D. C., Phone National 3414.

Domestic News Bureau: Atlanta 3, Rhodes-Haverty Bldg.; Chicago 11, 520 N. Michigan Ave.; Cleveland 15, Hanna Bldg.; Detroit 26, Penobscot Bldg.; Los Angeles 17, 1111 Wilshire Blvd.; San Francisco 4, 68 Post St.; Houston, 514 South St. *Correspondents* in more than 60 major cities.

Foreign News Bureaus: London, Paris, Frankfurt, Tokyo, Bombay, Melbourne, Rio de Janeiro, Mexico City. *Correspondents* in more than 50 major cities.

Robert F. Boger
PUBLISHER

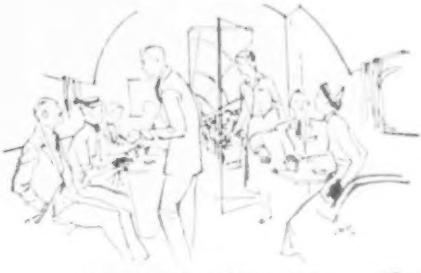
J. G. Johnson, *Business Manager;* R. W. Martin, Jr., *Sales Manager;* Anita Scaffo, *Research and Marketing;* Sales Representatives: J. C. Anthony, New York; M. J. Storz, Philadelphia; V. K. Dissette, Cleveland; L. J. Biel, Chicago; W. E. Donnell, St. Louis; J. H. Allen, Dallas; R. C. Maultsby, Atlanta; J. W. Otterson, San Francisco; C. F. Reynolds, Los Angeles. Other sales offices in Pittsburgh, Detroit, Boston, London.

Aviation Week August 28, 1950 Vol. 53, No. 9

McGRAW-HILL PUBLISHING CO., Inc., James H. McGraw (1860-1948), Founder. Publication office—99-129 N. Broadway, Albany, N. Y. CURTIS W. McGRAW, President; WILLARD CHEVALIER, Executive Vice-President; JOSEPH A. GERARDI, Vice-President and Treasurer; JOHN J. COOKE, Secretary; PAUL MONTGOMERY, Senior Vice-President, Publications Division; RALPH B. SMITH, Editorial Director; NELSON BOND, Vice-President and Director of Advertising; J. E. BLACKBURN, Jr., Vice-President and Director of Circulation. . . . Published Weekly, [illegible] a copy, [illegible] in Canada. Subscription rates—United States and possessions, $6 a year, $9 for 2 yr., $12 for 3 yr. Canada, $8 for 1 yr., $12 for 2 yr., $16 for 3 yr., payable in Canadian currency at par. Pan American countries, $10 for 1 yr., $16 for 2 yr., $20 for 3 yr. All other countries, $20 for 1 yr., $30 for 2 yr., $40 for 3 yr. Address all communications about subscriptions to [illegible], 330 W. 42nd St., New York 18, N. Y. Please indicate position and company connection on all subscription orders. Allow at least ten days for change of address. . . . Entered as second-class matter July 26, 1947, at Post Office, Albany, N. Y., under Act of March 3, 1879. Copyright 1950 McGraw-Hill Publishing Co. Cable address "McGraw-Hill New York." Publications combined with AVIATION WEEK are AVIATION, AVIATION NEWS, AIR TRANSPORT, AERONAUTICAL ENGINEERING AND AIRCRAFT JOURNAL. All rights to these names are reserved by McGraw-Hill Publishing Co.

Never before, such Constellation luxury . . .

Capital Constellations



Featuring the "Cloud Club," a Capital Innovation

Sheer beauty, inside and out! Custom interiors! Unsurpassed comfort! And Capital's priceless experience—23 years of dependability. Yours to enjoy at no extra cost aboard CAPITAL CONSTELLATIONS between Washington, Chicago, New York, Pittsburgh, Cleveland, Detroit, Milwaukee and Minneapolis-St. Paul. Fly today!

Capital
AIRLINES
Capital
AIRLINES

Capital
AIRLINES

Girard Perregaux, Official Watch . . .

General Offices: Washington 1, D. C.

CARL B. LANG, owner of Lang Flying Service, Municipal Airport, Omaha, Nebraska, is a flier himself, knows the importance of good service and products that assure dependability in flight . . . *for more than 16 years, he has used and sold Texaco Aviation Lubricants and Fuels.*

LANG
(OF OMAHA, NEBRASKA)
IS LONG ON SERVICE

Lang Flying Service at Omaha Municipal Airport gives its customers "airline service." Private planes, "non-skeds," any craft, can come in or take off around the clock. Attention is prompt and efficient. In-and-out time is held to a minimum. Lubricants and fuels are the finest – Texaco.

Successful airports everywhere know that reliable service and reliable products go together as business builders. In associating themselves with Texaco, these airports find they gain immeasurably from the quality of Texaco Aviation Products and the prestige of the Texaco name – known and trusted in all 48 States. Airlines, too, prefer Texaco. In fact –

More revenue airline miles in the U. S. are flown with Texaco Aircraft Engine Oil than with any other brand.

Let a Texaco Aviation Representative explain in detail the many advantages of handling Texaco Aviation Lubricants and Fuels. Just call the nearest of the more than 2,000 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, *Aviation Division,* 135 East 42nd Street, New York 17, N. Y.

Lang Flying Service, Omaha, has a nationwide reputation, built on quality service plus quality products

TEXACO AVIATION LUBRICANTS and FUELS

TEXACO
TEXACO

TEXACO

TEXACO Lubricants and Fuels

FOR THE AVIATION INDUSTRY

News Picture Highlights . . .

LATEST B-36 PRODUCTION MODEL TAKES OFF

Latest combat version of Convair's huge B-36 series, the B-36D, incorporating all the newest modifications, takes off on its first flight at Fort Worth, Texas. This is the first of the "D" production series. Power includes four GE J-47 axial-flow turbojets mounted in pairs under each wing to give additional power for takeoff, better climb, higher service ceiling, and speed boost.

AERO COMMANDER OFFERED FOR MILITARY USE

Trim high-wing, twin-engine Aero Commander light transport has started an intensive series of demonstrations before potential military customers to prove its utility as an executive plane or for liaison or twin-engine training purposes. Now powered with 190-hp. Lycomings, the 4200-lb. gross-weight craft has a sea level top speed of 181 mph. and a minimum control speed of 65 mph.

USAF BOOSTS SCORPION ORDER

Northrop has received a recent letter of intent from Department of Defense calling for more F-89 Scorpion all-weather fighters. Both J-47 engines have afterburners.

SABENA JOINS UN AIRLIFT

First DC-4 sent Sabena (Belgian Airlines) to aid in the Pacific airlift to Korea is shown after arrival in New York with double crew. They were welcomed by airline's U. S. manager, Fernand J. Martens, center.

AIRBORNE

also MAKES

BIG

ACTUATORS

•

Write for
Complete
Catalog

FUNCTION

Stabilizer adjustment for swept wing version of a production A.F. fighter.

PERFORMANCE

Static Load Rating: 20,000 lbs.
Maximum Operating Load: 7,200 lbs.
Operating Speed: 1 inch per sec.
Weight: 22 lbs. (Including Radio Noise Filter).

FEATURES

(1) Overload Clutch with external adjustment.
(2) Non-jamming Positive Overtravel Stops.
(3) Position Transmitter and Radio Noise Filter built-in.
(4) 1.65 H.P., 26 Volt D.C. Motor with Magnetic Brake and Clutch.

AIRBORNE
ACCESSORIES CORPORATION
25 MONTGOMERY ST. • HILLSIDE 5, NEW JERSEY
HOLLYWOOD, CAL. • DALLAS, TEX. • OTTAWA, CAN.

AVIATION CALENDAR

Aug. 28-30—International Northwest Aviation Council annual conference, Sun Valley, Ida.

Sept. 5-7—Aircraft Spark Plug and Ignition Conference, sponsored by Champion Spark Plug Co., Hotel Secor, Toledo.

Sept. 5-10—Eleventh flying display and exhibition, Society of British Aircraft Constructors, Farnborough airfield, England.

Sept. 7—Pratt & Whitney distributor operation and maintenance meeting, Pacific Airmotive Corp., Linden, N. J.

Sept. 9-10—Third annual convention of the California Wing of the Air Force Assn., Arrowhead Springs Hotel and Spa near San Bernardino, Calif.

Sept. 10-14—Instrument Society of America instrument conference and national exhibit, the Coliseum, Houston, Tex.

Sept. 12-14—Conference on ground facilities for air transportation, Massachusetts Institute of Technology, Cambridge, Mass.

Sept. 18-22—Fifth national instrument conference and exhibit, Memorial Auditorium, Buffalo, N. Y.

Sept. 19-21—Joint meeting on navigation and electronics, sponsored by the Institute of Navigation, the Radio Technical Commission for Aeronautics and the Radio Technical Commission for Marine Services, Hotel Statler, N. Y. C.

Sept. 25-27—1950 national electronic conference, Edgewater Beach Hotel, Chicago.

Sept. 28-30—Aeronautic meeting and aircraft engineering display, Society of Automotive Engineers, Hotel Biltmore, Los Angeles, Calif.

Sept. 28-30—14th annual convention of International Northwest Aviation Council, Sun Valley, Idaho.

Oct. 12-13—1950 conference on airport management and operations, Max Westheimer Field, North Campus, University of Oklahoma, Norman, Okla.

Oct. 16-20—1950 annual general meeting of the International Air Transport Assn., Fairmont Hotel, San Francisco.

Oct. 24-25—Third biennial Materials Handling Conference, sponsored by Westinghouse Electric Corp., Hotel Statler, Buffalo, N. Y.

Oct. 25-26—Flight Safety Foundation annual Safety Seminar, Denver, Colo.

Nov. 29-Dec. 1—Eighth annual meeting of Aviation Distributors and Manufacturers Assn., Ambassador Hotel, Los Angeles.

Dec. 16—14th Wright Brothers Lecture, Institute of Aeronautical Sciences, U. S. Chamber of Commerce Auditorium, Washington, D. C.

Jan. 29-Feb. 1, 1951—19th annual meeting of the Institute of Aeronautical Sciences, Hotel Astor, N. Y.

May 30-Sept. 9, 1951—World Transportation Fair, Santa Anita Park, Arcadia, Calif.

PICTURE CREDITS

7—Convair Engineering Sales & Service Corp.; INP; Sabena Belgian Airlines; 11—Wide World; 13—Curtiss-Wright; 14—(upper & lower) McGraw-Hill World News; 15—Convair; 26-27—(left) Temco; (middle) Beech; (right) Fairchild; 31—Airmondial; 39—McGraw-Hill World News.

NEWS DIGEST

DOMESTIC

Electronics production for the military of $1.5 billion in the next 15 months is called for in a National Electronics Mobilization Committee plan. The committee has been formed to coordinate all electronics industry mobilization activities. The new group is composed of 22 electronics field leaders appointed by Robert C. Sprague, president of the Radio-Television Manufacturers Assn., and Frank M. Folsom, chairman of the National Security Industrial Assn.

TWA service with 2-0-2As will start in and out of New York on Sept. 1. The new 36-passenger planes will also serve Philadelphia, Pittsburgh, Columbus, Dayton, Chicago and Kansas City. Later, Indianapolis, Cincinnati, Louisville and St. Louis will be included.

American Airlines DC-6 lost No. 3 engine, presumably due to propeller failure, near Denver, Colo. With 52 passengers and crew of five, the plane was cruising at 21,000 ft. en route from Los Angeles to Chicago. Plane was landed safely at Denver. One male passenger died of a heart attack, and five others and the stewardess were slightly injured as a result of damage to the fuselage between the first four rows of seats.

Third AJ-1 Navy bomber was destroyed when the right-hand P&W R-2800 engine tore loose at 25,000 ft. over Edwards AFB, Muroc, and damaged the plane's tail assembly, sending the AJ into a spin. The test crew rode the plane down to 10,000 ft., then bailed out.

How air traffic will fare by 1980 is visualized in a comprehensive forecast by the Port of New York Authority, which predicts a 238-percent jump in intercity passenger mileage compared with the 6.6 billion passenger miles flown in 1949. Other spectacular 1980 prophecies: Rail business will fall off 42 percent, airlines will carry almost all people traveling over 1000 mi., overseas traffic will double, air cargo will be nine times that of 1949. The Port Authority expects the government to approve air carriage of all first-class mail going over 1000 mi. after 1960.

Shipments of propellers and parts during first half of 1950 totaled $33.8 million, with $28.1 million going to U. S. military customers. Comparable figures for last year were $31 million and $24.3 million. Propeller plant employment ranged from a high of $378 during Jan. 1950 to 8255 in June. The data are based on reports by ten prop and parts makers.

Brig. Gen. Henry C. Kristofferson, one of PanAm's top pilots and a pioneer of the famed "Hump" operation of World War II, has been called back to active Air Force duty. Kristofferson is a specialist in long-haul operations.

Personal and executive plane exports in the 5000-lb. and under category, by eight companies totaled 19 valued at $102,485 during July, compared with 29 valued at $221,880 reported by nine concerns the previous month.

Dick Johnson won the national soaring title at Grand Prairie, Tex., with a flight of 356 mi. Johnson's RJ-5 sailplane is credited with having a wing form of very advanced design.

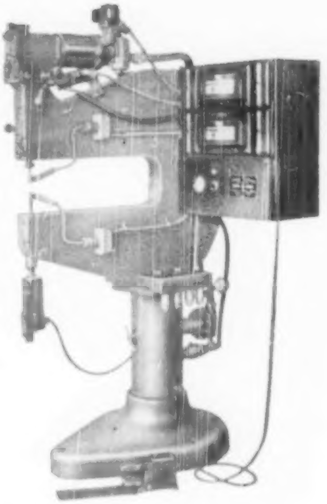
FINANCIAL

Southern Airways, Inc. showed a net loss of $292,333.24 for the period June 10, 1949 to May 31, 1950. This was based on the present mail rate. Permanent mail rates are expected to lower this figure materially.

The Sperry Corp. and its domestic subsidiaries reported a net income for the first 6 months of 1950 of $4,263,374, equal to $2.10 per share, compared with $3,700,525, or $1.82 per share, in the first 6 months of 1949. Shipments during the first half of 1950 were $77,521,887, compared with $61,407,131 in this same period last year. Unfilled orders at the end of June, 1950, were about $196 million, compared with $130 million at the same date last year.

Lockheed Aircraft Corp. announced a 50¢-a-share dividend, payable Sept. 15 to stockholders of record Aug. 25. It will be Lockheed's third dividend of 50¢ this year. In 1949 the company paid dividends totaling $2 a share.

Westinghouse Electric Corp.'s net income for the first six months of 1950 totaled $27,206,707. This is equal to $1.96 per share of common stock. Net income for the same period a year ago was $25,409,961, equal to $2.10 per share. Net sales for the first 6 months of this year totaled $463,907,387 as against $468,073,952 in the first half of 1949.



CP Hot Dimpler 150-EA

for hot dimpling

of magnesium and the harder aluminum alloys

In dimpling magnesium and the harder aluminum alloys, the application of heat is recommended to eliminate cracked dimples.

Developed for this type of work, the CP Hot Dimpler incorporates Zephyr coin edge dimpling punches and dies which insure accurate nesting of dimples. Write for detailed information on the new CP-450-EA hot dimpler.

CHICAGO PNEUMATIC
TOOL COMPANY
8 East 44th Street, New York 17, N. Y.

AIR COMPRESSORS • AIRCRAFT ACTUATORS
PNEUMATIC and PNEUDRAULIC RIVETERS
HYDRAULIC RIVETERS • ELECTRIC TOOLS

What's the success secret of Shell Airport Dealers?

BREAKFAST FLIGHT
SUNDAY
SHELL

One Example:

SHELL'S PLANNED MERCHANDISING...

Each month, as Shell representatives visit hundreds of airports, they help introduce dozens of merchandising ideas for increasing activity around the airport, for stepping up sales—anything that may help the dealer give better service and increase his revenue.

Through Shell's Aviation Department, carefully screened merchandising ideas are sent regularly to all Shell airport dealers in a special Aviation section of the magazine "Shell Progress."

Write to us for a copy of "Shell Progress."

PLANNED MERCHANDISING is one of the three main runways of "Airport Success" which are:

1. Shell's Planned Upgrading of aircraft fuels and lubricants.
2. Shell's Planned Lubrication service.
3. Shell's Planned Merchandising program.

SHELL

SHELL OIL COMPANY

52 WEST 50TH STREET, NEW YORK 20, N. Y. • 100 BUSH STREET, SAN FRANCISCO 6, CALIFORNIA

WHO'S WHERE

In the Front Office

George M. McCleary, a director of U. S. Airlines, has been named president, succeeding **Harry R. Playford**, organizer and president of the company since 1945. McCleary, a director of Florida Securities Corp., has had extensive aviation securities experience. Playford resigned because of the pressure of his other business interests. He will continue to be a director of the all-cargo airline.

L. N. Mason has been appointed assistant to the president of Braniff International Airways. Mason, who has for the past two years been an executive of the Farm Bureau Insurance Co., Columbus, Ohio, will assist in a program by the airline to step up efficiency and economy of operation.

W. R. "Ike" Lyon has been named administrative assistant to the vice president of The Flying Tiger Line. He joined the freight carrier five years ago as a salesman.

New Appointments

NSRB ROSTER BOOSTED—W. Stuart Symington (left), chairman of the National Security Resources Board, extends a warm welcome to his new assistant, Robert J. Smith, former head of Pioneer Air Lines, immediately after Smith has taken the oath of office as vice chairman. Smith has had extensive Air Force experience.

Luis de Florez, head of Florez Engineering Co., has been appointed to the National Inventors Council, which celebrated its tenth anniversary August 11.

Changes

Steve Canton has been named an express publicity representative for Railway Express Agency, succeeding **W. J. Cleary**, new editor of publications.

▶ **Among the Manufacturers—Raymond C. Forsnas** has been appointed hydraulic division representative for West Coast, Texas and Kansas by [illegible] Manufacturing Corp.

INDUSTRY OBSERVER

▶ Stanley Aviation Corp., is stepping up its development of heavy-duty cargo-dropping equipment designed particularly for dropping heavy artillery supplies on rugged terrain. The Buffalo, N. Y., company's $200,000 contract calls for development and delivery of prototype of a dropping platform. It would be equipped with electrical devices which would open the parachute on discharge from plane and disconnect chute from the platform on contact with ground. Final equipment would be capable of handling mass paratroop drops.

▶ Cessna Aircraft Co. is advancing by three months normal production plans of the L-19. The plane is being procured for Army Field Forces as a result of recent competition between lightplane manufacturers to meet stepped-up Army requirement for artillery-spotting aircraft. L-19 is an all-metal, two-place monoplane equipped with a Continental O-470-11 engine developing 213 hp.

▶ Aeronca Aircraft Corp., last year in a rocky financial position, is making a fast come-back. It is producing rocket bazooka launchers for the Army. The bazooka launcher fires a 28-in. long, 3.5-in. rocket with an effective range of 200 yards and is capable of piercing 11-in. armor. Production, currently held at 70 items per day, could be stepped up to five times that amount within 60 days.

▶ The first Canadian-built North American F-86 jet fighter reached a speed of 670 mph. in its initial test flight, August 9, near the Montreal airport. The Canadian version of the Sabre, built by Canadair, is scheduled for installation on the Avro Orenda as soon as the engine is in production.

▶ Runway of Boeing Airfield, Seattle, is being lengthened to 10,000 ft., for testing the XB-52 "heavy" jet bomber. Extension, which will cost approximately $900,000, has been approved by CAA. Company plans roll-out of the big bomber late in 1951.

▶ Avco Corp., Nashville, Tenn., division used by Convair during World War II as an assembly plant, is coming back into the aviation industry picture with heavy orders for aircraft components. Plans are also contemplated by the division to convert to either fighter or bomber production in the event of total mobilization.

▶ Beginning July 1, 1952, all Civil Aeronautics Administration facilities and services will use the nautical mile and the knot as a single military-civil standard for measurement of distance and speed. Already adopted by the military, the nautical mile and knot speed has long been considered superior to the statute mile from a navigational point of view, according to CAA.

▶ Aeronautical Radio Inc. has announced expansion of communication services for airline planes flying the Pacific, through arrangements with Mackay Radio and Telegraph Co. Mackay has enlarged its radio transmitter building at Kahuku, Hawaii, and has installed four new multichannel transmitters and antennas, to enable Arinc to cover the entire Pacific with both radio telephone and radio telegraph service to planes.

▶ A Baltimore, Md., subsidiary of Skyline Corp., Wichita, Kan., has been organized for the development, design and manufacture of aircraft armament and associated equipment. Known as Armaments Aircraft, Inc., the new company is headed by a former Glenn L. Martin Co. executive vice-president, Harry T. Rowland. Key personnel of Armaments Aircraft are, for the most part, drawn from the Martin organization.

▶ British sources report that a new jet bomber, larger than the B-36 is under construction in England. Scheduled for roll-out next spring, the plane is said to be twice the size of the British Lancaster which had a span of 120 ft. and length of 78 ft. As yet unnamed, the big bomber is expected to fly at a speed of more than 500 mph. and at altitudes above 55,000 ft.

Due to a typographical error, a reference was made in this space last week to an "F-98" fighter. The designation, of course, should have been F-95.

AVIATION WEEK

VOL. 53, NO. 9

AUGUST 28, 1950

The Climb Back to Air Power

Two and one-half years ago, the Finletter Commission, appointed by the President, concluded that the U. S. needed 70 air groups to defend itself from attack. The Korean action, never envisioned by the planners, caught the U. S. with an Air Force not only smaller than recommended, but of different character. Now the build-up has been started to a new type of air force from the skeleton 48 groups that were dictated by economy. Here is the step-by-step record of what's been happening to the USAF.

GROUPS	FINLETTER REPORT January, 1948	AUGUST, 1949 (Actual)	JUNE 1, 1950 Pre-Korean Cutbacks	NEW GOAL
Heavy Bomber	2	2	3	5
Medium Bomber	18	15	12	15
Light Bomber	5	2	1	4
Day Fighter	22	20	17	21
All-Weather	3	1	3	5
Tactical Reconnaissance	4	1	1	5
Strategic Reconnaissance	6	6	5	5
Troop Carrier	10	7	6	9
Totals	70	54	48	69

New Orders Coming for Tactical Planes

USAF to up buying of assault transports, light bombers, copters, longe-range fighters.

By Ben Lee

The battle in Korea, sparking a long-smouldering inter-service resentment over roles and missions, is forcing a change in Joint Chiefs of Staff planning and this promises a profound effect on USAF procurement.

The Joint Chiefs have ordered USAF to tighten liaison with Army in meeting Army requirements in close support technique and to step up procurement of tactical support aircraft.

This is what Army sources say is needed from the Air Force in the following priority:

- **Assault and troop transports.**
- **Helicopters.**
- **Long-range fighters.**
- **Light bombers.**

These steps USAF has already taken:

- **Ordered completion** of assault transport evaluation between Chase, Northrop and Fairchild transports by Aug. 30—30 days ahead of schedule.
- **Ordered reassessment** of twin-engine transport needs. USAF thinking is currently in terms of modifying an existing production twin-engine transport to fill a dual role—pilot trainer and light utility.
- **Made plans to up** orders on North American B-45D version which will feature heavier, improved armament and a greatly increased fuel capacity over "C" version.
- **Stepped up** orders on the Convair T-29.
- **Asked for step-up** of the Piasecki XH-16 development. The copter is currently expected to make its first test flight in mid-1952.
- **Asked for speed-up** of McDonnell F-88 experimentation with Allison T-38 turboprop installation. Allison will be asked for heavy increase of T-38 production.

▶ **Air Mobility**—At the 1948 Key West, Fla., conference, USAF was charged with development of long-range strategic warfare, air defense of the U. S., and tactical support for the Army and Navy when required.

Air mobility and tactical support of its ground troops is a sore point with the Army. Today, the Army is not air transportable. Army sources state emphatically that even a short strategic airlift of one division in its entirety would be impossible.

Since Key West, the Army has consistently claimed that USAF has paid little heed to its needs in tactical aviation. Air Force has insisted that it has provided for Army requirements within the limit of its budget and in keeping with its primary mission of carrying the war to the enemy via long-range strategic bombers.

▶ **No Tactical Planes**—The Army says the USAF answer is all right, as far as it goes. Along with Navy, it agrees that only the B-36 and the Atomic Bomb have saved Western Europe from "absorption" by Russia. But, nevertheless, Army sources claim, we still have no specifically designed tactical aviation units in production outside of troop carrier requirements.

Several months ago USAF undertook to refute this claim. It organized, produced and directed Exercise Swarmer. Set up as a joint military problem, it was designed to show the effectiveness of establishing and maintaining an air head. All equipment and personnel were introduced into and supplied in battle by air. The problem was executed under ideal conditions.

The official tabulated results of Swarmer are classified. Nevertheless, woeful inadequacies of the USAF tactical air arm were glaringly apparent.

▶ **Transports**—In transport, USAF was found lacking generally in design utilization. In loading and unloading, the air transport showing, except the C-82, was particularly poor, because of equipment. Admittedly, air bases used in the maneuver were not of Fairfield-Suisun or Tempelhof caliber. Army-USAF planners are not concerned with load and unload times at such bases. But at Swarmer airbases, in fine shape operationally, officially posted on-ground times for transports involved in the strategic airlift were in minutes and seconds.

- C-74: load time, 1:45; unload time, :45; service time, :20; ground time, :30.

- • **C-54**: load time, :55; unload time, :35; service time, :10; ground time, :30.
- • **C-46**: load time, :40; unload time, :30; service time, :10; ground time, :30.
- • **C-119**: load time, :45; unload time, :30; service time, :10; ground time, :30.
- • **C-82**: load time, :35; unload time, :25; service time, :10; ground time, :30.

▶ **Facilities Lacking**—Despite long-range planning of air and ground commanders engaged in the peacetime maneuver, strategic airlift loading and unloading equipment had to be hastily improvised by engineers not only in the forward landing area but in rear staging zones.

None of the aircraft utilized in Swarmer, except the C-82 and the C-119 had similar cargo-handling features. The resemblance between these two, of course, is due to the fact that the latter is merely a heavier version of the former. Generally, cargo compartments are too high off the ground and floor levels completely different with each plane, it was found.

The Army has stressed to USAF that it wants assault transport aircraft built close to the ground, with entry to cargo compartment at truck-bed height or with cargo doors opening out and down, that can double as ramps to ground level. These requirements are met only by the C-82, C-119 and Chase YC-122 and XC-123. The Northrop C-125, which also has ramp loading, is not at this time classed as an assault transport.

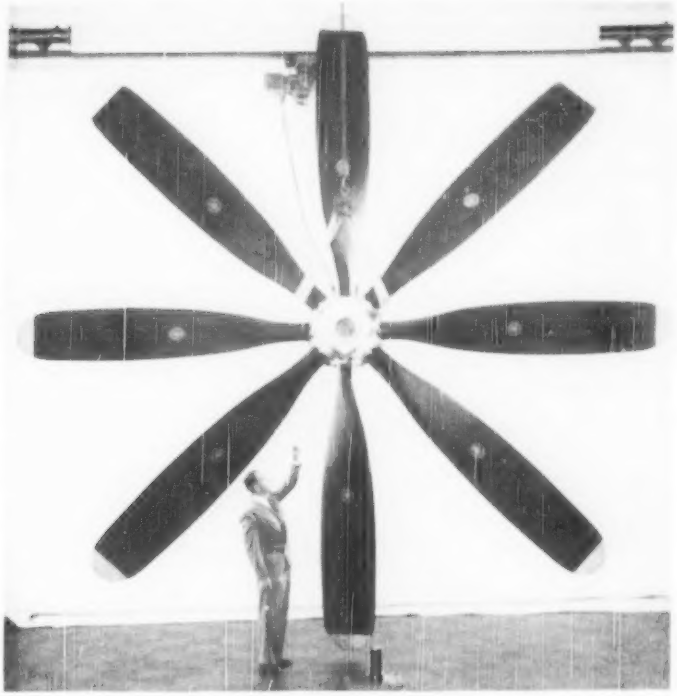
▶ **Outline for Korea**—Tactical fighter aircraft employed by Swarmer outlined problems that now face U. S. Air Force in Korea. In the North Carolina exercise USAF, cognizant of the range deficiencies of its jet fighters, studied practical application of high-altitude cover technique. The Air Force hoped to prove that it could cope with enemy fighter problems by coupling high altitude jet cover with air-ground controllers using radar intercept methods. The plan was not effective. Time after time, longer-ranged piston-engined fighters swept in low, escaped radar detection, struck their target and escaped interception.

▶ **On-Call Fighter**—The Army has asked USAF for a fighter capable of long-range that could be continually "on call" when needed. Whether it is reciprocating or jet powered is of little consequence to Army. What it wants is a fighter capable of close ground support work, up to 500-mph. speed, 2500-mi. range and heavy armament (AVIATION WEEK July 17). The Douglas A2D could meet this requirement with sweptback wings as could the turboprop version of the McDonnell XF-88.

▶ **Helicopters**—The Army is particularly interested in development of the Piasecki XH-16 currently scheduled for flight test in mid-1952. Air Force is asking that Piasecki step up flight test by at least six months. The Army is also vitally interested in a single- or two-place light helicopter for quick, low-altitude reconnaissance and liaison missions. Requirement includes provision for easy stowage aboard air-transportable truck and simplicity of assembly and maintenance in the field.

▶ **Convertaplane**—The convertaplane is bobbing up again in Army-Air Force requirements talk. Whether or not it is to be revived and on what scale is conjectural at this point. Air Force sources deny. Army enthusiasts of the [illegible] point to [illegible] any form. The requirement would call for a convertaplane capable of 250-mph. forward speed, hovering ceiling of 7,000 ft. and service ceiling of 15,000 ft.

▶ **Strategy Imperfect**—Technological progress has pushed aeronautical science to high levels, in many instances beyond its practical military application. Joint Chiefs of Staff thinking placed possibility of war at not earlier than Jan. 1953, and envisioned weapons of the future. Korea has upset the time-



Bigger Prop for Bigger Jobs

Foretaste of the future in propeller use was disclosed yesterday when Curtiss-Wright Corp.'s Propeller division announced what it claims is the world's largest and most powerful propeller, the eight-bladed, 19-ft. "Octoprop" shown above.

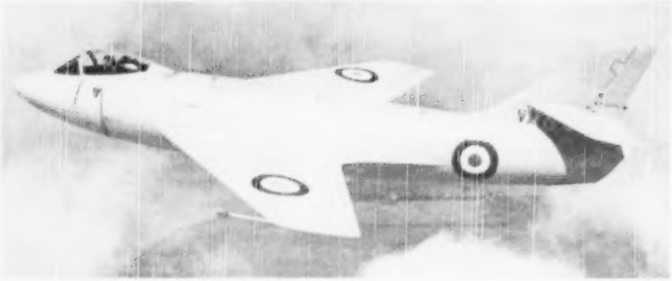
Curtiss says the dual-rotation prop, which has been delivered to Wright Field for tests, was designed for use with a "gas turbine engine of 10,000-15,000 hp." Only turboprop engine yet developed in this country known to be rated anywhere near the power class of the Octoprop is the 10,000-hp. Northrop Turbodyne, now being purchased by General Electric.

The Octoprop is a development model, but its testing at this time when the Air Force is showing increasing interest in turboprop power could indicate that it is a prototype for future Curtiss production units of this type.

In construction of the eight-bladed propeller, Curtiss engineers borrowed liberally from the experience and design of the Curtiss B-36 props. The B-36 unit has the same 19-ft. diameter, but has only three blades. The Octoprop is of hollow steel construction, full-feathering, reversible and has provisions for hydraulic de-icing.

table. As a result, air strategy for battle, based on current production weapons, is sketchy and not yet practicably crystalized. The fighting machine's military balance was proving unstable.

While long-range bombing retaliatory strategy is this nation's plan for holding off potential aggressors until a firm battle plan of the day is laid, the Joint Chiefs have learned that the Finletter request for air forces "in being" were not idle words. The fact remains that the Army is absolutely dependent on USAF for tactical air support. With Korea, the Joint Chiefs found tactical aviation wanting.



HAWKER P.1081 is latest British plane to be scheduled for production abroad.

Australia Builds British Designs

Hawker P.1081, new sweptwing jet, joins Canberra, Lincoln and Vampire for 'Down-Under' production.

(McGraw-Hill World News)

London—Britain's candidate for the title of world's fastest fighter—the sweptwing jet Hawker P.1081—has joined the growing list of English designs which will be built in Australia as well as at home (AVIATION WEEK July 10, p. 15).

The P.1081 will be produced at Commonwealth Aircraft Corp.'s factory at Fisherman's Bend, Port Melbourne, Melbourne, Australia. It is also being built by its designers, Hawker Aircraft Ltd., in England at Kingston-upon-Thames, Surrey.

Negotiations had been going on for some months between Hawker and the Australian Department of Supply and Defence have now been completed. Australian technicians are at Hawker's Kingston factory studying the design of the P.1081, and the first batch of drawings has already been sent to Australia. Performance trials of the P.1081 in England will be held at Boscombe Down within the next few weeks.

▶ **Striking Jet**—The P.1081, a development of the Hawker P.1052, flew for the first time on June 20 and three days later was flown to Brussels by Squadron Leader T.S. "Wimpy" Wade, Hawker's chief test pilot, to take part in the Brussels International Air Show. Its exceptional speed and maneuverability was later strikingly demonstrated by Wade in a series of spectacular low level flights across Farnborough airfield at the RAF Display on July 7.

Powered by a Rolls-Royce Nene 5000-lb. thrust turbojet engine, the P.1081 has sweptback wings, tailplane, and fin and rudder, and a single jet exhaust instead of the split-duct exhaust on its predecessor, the P.1052. This straight-through exhaust allows the P.1081 to be equipped with reheat. Span is 31 ft. 6 in., length 37 ft. 4 in.

The Nene centrifugal-type turbojets for the Australian-built fighters will be built in CAA's engine factory which is also at Fisherman's Bend.

▶ **Canberra Bomber**—The same factory is also swinging into production on the Rolls-Royce Avon axial-flow turbojet design, which will be supplied for the Australian-built Canberra light bombers, originally a design of English Electric Company Ltd.

The Canberra twin-jet bomber (some 300 of which are being built for the RAF in English Electric's Preston works) is also going to be built in the Melbourne factory of the Australian Government's Department of Aircraft Production. Tooling up for this project is already underway.

British aircraft designs are no strangers to the DAP which in May rolled out its 50th Avro Lincoln piston-engined heavy bomber, currently Britain's best effort in this field.

▶ **Vampire Production**—De Havilland's Australian factory at Sydney is currently in the midst of producing an order of 50 DH Vampire single-jet fighters for the RAAF, using Australian-built Nene engines in place of the DH Goblin.

Australia isn't wholly dependent on British designers, however. CAC is now in the final stages of assembly of a new trainer prototype of its own design which is expected to fly early in the spring of 1951. Commonwealth is also well along on a long-range all-weather fighter project.

Props on Top

In dollars and weight, propeller planes will exceed jet purchases.

By Alexander McSurely

Dayton—Measuring with the $7.5 billion plane procurement program of fiscal 1951 as a yardstick, the future of the propeller-driven military airplane now looks brighter than at any time since the first American turbojet plane, the Bell P-59 Airacomet, made its first flight back in 1944.

Analysis of the complete program, whose figures are still not disclosed for security reasons, indicates that in airframe pounds, and in dollars, the propeller-driven planes are ahead of the jet-powered craft.

Bulking large, dollar-wise, in the procurement of propeller warplanes are the big, high-cost-per-unit orders for transports—principally Douglas C-124s, Boeing C-97s and C-119s—which total well over 500 planes.

Meanwhile, a newcomer in the transport field may prove important. It is the Consolidated Vultee P5Y turboprop flying boat transport, just ordered by the Navy in a small quantity.

The Navy, which took the lead in U. S. turbine-propeller developments after World War II, is also placing a substantial new order for the turboprop Douglas A2D attack plane. Meanwhile, Air Force, which never really stopped propeller research despite the fact that some of its top generals prematurely wrote off the propeller as a military factor, is now a heavy backer of new propeller developments.

▶ **Curtiss Prop Test**—Recently disclosed was the Air Force project to test a new Curtiss eight-blade propeller of 10-ft. diameter on a McDonnell F-88, with an Allison turboprop T-38 engine in the nose.

The project seeks to get actual flight experience in the high subsonic and possibly transonic range with a propeller aircraft. Augmenting the T-38 power will be the F-88's original turbojet Westinghouse J-34 twin powerplants.

Air Force also is the backer of wind-tunnel tests of what is possibly the first full-scale propeller with supersonic flight design capabilities, an Aeroproducts development, at Cornell University's research center, located at Buffalo, New York.

▶ **Transport Plans**—While current transport procurement is concentrated on piston-engine propeller-driven planes, transition to turboprop engine power for at least two of the principal types—the four-engined C-124 and C-97—is already being planned.

First military turboprop production orders are going to Allison for the T-40 powerplants in the A2D and the P5Y. But Pratt & Whitney's PT-2 turboprop is due to get some orders for the transport turbine-propeller versions.

With USAF expected to buy some more Convair T-29s (navigation trainer version of the commercial Convair Liner), a turbine-propeller version of this plane, with Allison engines, is also a likely prospect.

While immediate turboprop emphasis is on the planes mentioned, new turbine-propeller bomber conversions of such planes as the Consolidated B-36 and the Boeing B-47 are being considered.

It is understood that the first priority is being placed on the transport program due to lack of adequate airlift capacity.

▶ **Comeback**—Two factors are prominent in the interesting comeback of propeller-driven planes:

- **Development of new thin-blade** high-speed propeller blades capable of speeds considered impossible only a few years ago.
- **The discovery in Korea** that the high fuel consumption of turbojet engines, in their present state, still makes long-range military jet operations a very costly operation in terms of payload and range.

Airlift Demand on Carriers Is Lower

Military requirements for commercial airlift to carry high-priority personnel and cargo to the Korean battle area have passed their initial peak.

Barring a sudden worsening of the situation in the Orient or a new emergency elsewhere, the Department of Defense believes it can get along with the 65 four-engine airline planes it now has on lease.

The Military Air Transport Service said that it would not need five other commercial transports which were slated to enter the Pacific airlift but had not yet been delivered for integration in the operation.

▶ **Surplus Capacity**—With the airlift already offering about 15 percent more capacity than required, there was speculation that some of the 65 planes in service would also be returned to civilian use.

Regular airlines are providing 40 of the 65 planes contracted to the military. Remainder came from nonscheduled services.

Certificated airlines, for the most part, would welcome early return of the bulk of their equipment, even though some of the C-54s now under military charter had previously been engaged in unprofitable cargo operations.

Nonscheduled carriers, on the other hand, would be happy to keep their ships busy in military contract service on a long-term basis.

▶ **Contracts Indefinite**—Just how the carriers will come out of the Pacific airlift financially has not yet been determined. The work was started under letter contracts which permitted only part payment for services rendered. Final contracts were in almost complete form last week.

A number of the commercial craft that went into the Pacific airlift from scheduled service required extensive conversion for the long-range operation. Big question is who will bear the cost of such modification.

Although unprecedented use is being made of cargo space in combination passenger-cargo planes, freight backlogs have accumulated at some domestic airline points.

Eastern Air Lines dropped its all-cargo service completely, and other carriers were forced to skip points formerly served by airfreighters.

▶ **Replacements Eyed**—Some airline officials considered the possibility of replacing their cargo C-54s with twin-engine C-46s. But the deals did not materialize.

To many airline officials, the Korean outbreak pointed up a significant fact: The carriers were in a better position to meet the emergency than the military itself.

Even one Pentagon personage denied that any such course was intended, military officials attempted to take over airline operations rather than charter the carriers' equipment.

A COMPLEXITY OF MODERN WAR

One of the unpublicized but highly necessary machines needed for waging intercontinental warfare is the impressive bomb-loading device shown here carrying a 21-ton dummy utilized by Convair for B-36 loading practice at Fort Worth. The carrier can handle 25-ton missiles. Loader is towed beneath plane, then bomb is hydraulically lifted into position inside bomb bay, where it is secured.

What's Ahead in Congress

New Leadership

The House Armed Services Committee Chairman Carl Vinson is at the helm, steering the country's defense program and mapping its future course.

Secretary of Defense Louis Johnson, whose energies since the Korean outbreak have been so largely dissipated in personal, political, and policy feuding with the State Department and scores of congressmen, has not yet challenged the new leadership. One reason: Vinson has diplomatically kept it on a behind-the-scenes basis.

Vinson's skepticism of Johnson's administration goes back to the date of his appointment.

Frustrated by the President's backing of Johnson (particularly on the 70-group Air Force issue), the Georgia veteran in Congress followed a give-and-take compromise course while the war remained cold. For example, this spring he dropped his demand for a $553-million supplemental appropriation for aircraft procurement when Johnson agreed to go along with a $300-million increase.

With the outbreak in Korea, Vinson aimed to quell his hotheaded colleagues harassing Johnson for his "economy" program and suggested that the past be forgotten. But, simultaneously, he decided that defense must come first from here on out, and that Johnson was too steeped in politics to put defense first. The time for compromise was over. A non-political figure whose interest during his 35-years' service in the House has been almost exclusively defense, Vinson took over.

The Joint Chiefs of Staff and other top officers are now working out strategic plans and armed services composition with the Georgian. In addition, several subcommittees he has appointed are gathering data on the operational level at closed sessions with specialists. These include the subcommittees on USAF Procurement (headed by Rep. Paul Kilday), on Naval Aircraft Procurement (headed by Rep. Lansdale Sasscer), on Guided Missiles (headed by Rep. Edward Hebert), on the Radar Fence (headed by Rep. Mendel Rivers), on Tactical Aviation (headed by Rep. Overton Brooks).

Vinson has announced he will make a major House address when planning has crystallized, outlining what the country's defense strength is and what it should be. Later, however, he remarked to AVIATION WEEK: "But maybe we will get what we want and should have without any speech; and, in that case, it would be better for all not to have a speech."

He made these observations, indicating what's to come in defense:

- **Air Force**: "I don't think we have to worry about the Air Force right now. With the President's supplementals (bringing USAF procurement for this year up to $4.2 billion, exclusive of procurement for foreign aid, which will be heavy), the Air Force will be in satisfactory shape. I do not see any urgency now for lifting the legal authorized strength (of 'not to exceed 70 groups') for the Air Force."
- **Naval Aviation**: "Even with the President's supplementals (bringing funds for 1951 fiscal year Naval aircraft procurement to $2.2 billion), it will still be in bad shape; we will need a great deal more money for Naval aviation this year. And, maybe we will decide to go ahead with construction of the super carrier, the United States."
- **Tactical Aviation**: "We have been considering transferring it to the Army, but even more than that, I am thinking about transferring it to the Marine Corps."

Where the Money Went

The lion's share of the $48 billion expended on defense over the past four years—$34.5 billion—went for food, pay, clothing, maintenance, and operations, Chairman Millard Tydings of the Senate Armed Services Committee, explained to the Senate. Only a fraction—$6.2 billion—went for new planes.

Still More Planes

Reliable Sen. Harry Byrd, a member of the Senate Armed Services Committee, reports that "the top command" has approved an additional $15-billion increase in defense spending—for both foreign aid and our own forces—which will be recommended to Congress "in the next few weeks." This would boost the 1951 fiscal year total from $30 billion, as now recommended by the President, to $45 billion. Under the $30-billion program, plane buying—for USAF, Navy, foreign assistance—will amount to approximately $7.5 billion; under the $45-billion program, it would rise to approximately $11 billion.

Action Wanted

Sen. Edwin Johnson, chairman of the Senate Interstate and Foreign Commerce Committee, is determined to end theorizing on the subject and have a schedule of service mail payments for domestic routes ready by next March.

He wants a three-way separation of mail pay: Service payments to the airlines, subsidy payments to towns for uneconomic service, and subsidy payments to air carriers.

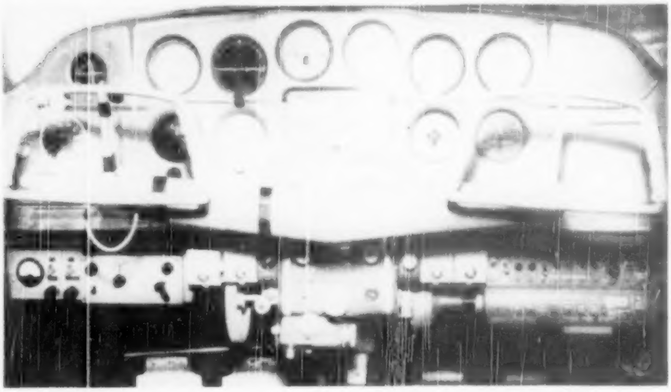
With the $200,000 that will shortly be available to his committee, he will contract with a private accounting firm with the explicit understanding that it come forth with the three-way breakdown for all domestic routes, so that separation of service and subsidy payments can be placed into effect at least by the beginning of the next fiscal year.

Railroad Undermining?

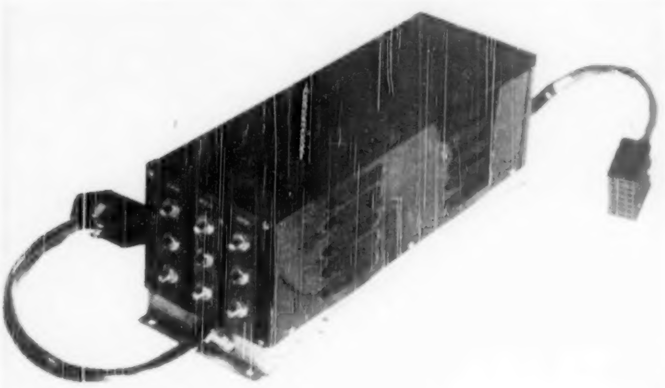
Rep. Charles Wolverton's opposition to the $12.5-million program for government-financed testing of commercial prototypes because "it doesn't go far enough" is written off in some Capitol Hill circles. They claim that Wolverton's call for more is a delaying tactic which will only throw the whole issue of commercial prototype development into a mire of controversy from which no program will emerge before the end of this session. And, even if the expanded program, to which Wolverton gives lip service at least, should be passed by the Congress, it faces a veto. The Administration has made clear that the $12.5-million program is the maximum it will support.

Wolverton is a top-ranking Republican on the House Interstate and Foreign Commerce Committee and has a reputation as a spokesman for the Association of American Railroads. AAR is opposed to the testing program as more subsidization to the already over-subsidized airlines.

SALES & SERVICE



LEAR PILOT cockpit controls are set on small casing below wheel yoke. Unit's . . .



BRAIN BOX, about size of a bread loaf, contains amplifier unit with complex circuits.

New Lear Autopilot For Lightplanes

A new small postwar automatic pilot designed to ease the continuous strain of handling controls of personal and executive aircraft has been placed on the market by Lear, Inc. The L-2 Lear Pilot, designed for the four-place category, sells for $2990 plus installation. Deliveries are being quoted at 60 days from receipt of orders.

Lear has been developing this new device for several years under actual flight conditions in various types of weather.

The L-2 Pilot weighs 20.15 lb. complete, and is about the size of a loaf of bread. In addition to maintaining level flight, the instrument can be utilized for maneuvering.

It can be disengaged instantly by actuating a switch mounted on the control wheel. Furthermore, switch controls make it possible for the pilot to override the automatic pilot in event of emergency.

Because of a limited market in the past, little attention has been paid to developing an automatic pilot for small aircraft. High cost and weight have tended to keep the market down. Sperry's prewar all-hydraulic A-3 (now out of production) weighed approximately 75 lb. However, further development by its British associate, Sperry Gyroscope Ltd., resulted in production about a year ago of the A-L-1 which weighs approximately 20 lb. installed, and costs about $5,200 at present exchange rates, plus installation. Several types of lightweight autopilots have been made exclusively for military use.

Civil Schools To Train AF Cadets

Civilian flight school operators will be called upon to give basic flight training to approximately 1350 Air Force cadets, under a program announced by USAF.

A survey now being made of standby Air Force bases and civilian flight school facilities will determine the best locations for the civilian training operations for cadets.

The new program is in lieu of the plan previously announced for the opening of an inactive USAF basic flight school for a test of civilian school operation.

Meanwhile Spartan School of Aeronautics, Tulsa, and Cal-Aero Technical Institute, early this month were scheduled to begin their programs of training 275 USAF airplane and engine mechanics at each school (Aviation Week Aug. 7).

Air Materiel Command will announce details of flight school specifications and contracts through its Contractors Relations Section, Procurement Division, at Wright Field, Dayton.

Under the present USAF basic training program each cadet gets approximately 170 hr. flight training, which would mean approximately 230,000 flight hr. for the whole new program.

In World War II, civilian flight schools conducted virtually all the basic flight training program for the Army Air Forces, and it is anticipated they would do so again for USAF in event of war emergency.

BRIEFING FOR DEALERS AND DISTRIBUTORS

▶ **Ryan Distributor Named**—W. S. Kirkpatrick & Co., N. Y. C., has been appointed Navion distributor for Iran and Iraq, bringing to 40 the number of countries on the Navion roster.

▶ **New Sales Firm**—Distribution and export of aircraft engines, parts and equipment is the business of newly formed Boyle Aviation Co., Inc. Offices and warehouses are at 40-66 Lawrence St., Flushing, L. I., N. Y. Phone number is FLushing 7-4848. The new firm is headed by James T. Boyle; Charles Boyle, Jr., is vice president.

▶ **SAC Expansion**—Southwest Airmotive has signed a 12-yr. sublease contract with Braniff Airways to take over another hangar at Love Field, Dallas. SAC will move aircraft, instrument and radio shops into the new acquisition later this summer.

FINANCIAL

Earnings and Tax Estimates For Selected Aviation Issues*

Aircraft	Estimated 1950 Pre-Tax Earnings	Estimated 1950 Earnings After Normal 45% Tax	Excess Profits Tax "Shelter"
Boeing	$11.75	$6.50	$5.00
Curtiss-Wright	0.95	0.50	0.80
Douglas	20.00	11.00	10.50
Grumman	8.00	4.50	5.60
Lockheed	11.80	6.50	5.70
Martin	2.25	1.25	0.85
North American	6.00	3.30	2.65
Republic	1.80	1.00	0.40
United Aircraft	5.75	3.15	4.45
Airlines			
American	2.30	1.25	.50
Eastern	2.75	1.50	1.40
Northwest	2.00(d)	2.00(d)	10.00
Pan American	1.25	0.70	3.50
TWA	2.00	1.10	7.40
United	2.25	1.25	3.65

* Figures are from Value Line projections. Earnings are per common share. (d) Deficit

'Shelter' vs. Excess Profits Tax

Value Line, advisory service, points out protection that may be afforded by earnings in base period.

An interesting appraisal of the impact of taxes on aviation earnings is presented in the current survey released by the Value Line, an investment advisory service.

The current outlook of both the aircraft and air transport companies is also given careful scrutiny.

Value Line believes that even though 1950 profits may be subject to a 47 percent corporate income tax rate, the aircraft industry will show a larger net income than in 1949. Delivery rates compared favorably with 1949, even prior to the Korean campaign, and a general acceleration of shipments is now under way and will swell second-half volume.

The advisory service further declares that the aircraft manufacturing industry is in the forefront of the new $10-billion rearmament program. The major impact of expanded procurement schedules will be felt next year.

► **Tremendous Rise Seen**—This causes the study to conclude that 1951 should see a tremendous rise in the industry's dollar volume. Pre-tax income of the major producers may double the current satisfactory rate. The transport companies may do even better.

The gain in net income is likely to be smaller due to stiffer renegotiation provisions on government work and to the probable enactment of an excess profits tax in addition to an increase in the normal tax rate.

In individual analyses, the advisory service reviews the position and outlook of the selected companies it regularly appraises. It has made a bold effort to project earnings for 1950 as well as under excess profits taxation that may exist in 1951.

In making its estimates for 1950 earnings, Value Line assumes that a 45 percent corporate normal income tax rate will be in effect, retroactive to Jan. 1, 1950. (The Senate Finance Committee has proposed the 45 percent rate, but retroactive to July 1, 1950.)

► **Excess Profits Taxes**—Approaching 1951 with the safe premise that excess profits taxes will be imposed for that year, the advisory service has computed excess profits tax exemptions for the companies under review. The basic assumption is made that such exemptions will be based on 100 percent of the average earnings for the base period 1946 to 1949. This is a good possibility, but there is no assurance of its being used. Invested capital may be used as a base, or a combination of invested capital and average postwar earnings may be the structure of the ultimate formula.

These qualifications are important in placing the Value Line projections in proper perspective.

The advisory service's earnings and tax estimates for 1950 and the 1951 excess profits tax "shelter" are presented in the accompanying table. Caution is directed toward the 1950 estimated earnings, after the 45 percent normal tax rate. As previously noted, a very important variation in pre-tax earnings can result if the tax rate is made retroactive only to July 1 instead of to Jan. 1, as assumed in the table.

► **"Shelter" Effect**—The excess profits tax "shelter" under the assumed conditions specified will have a varying effect upon different companies.

In the case of Boeing, for example, because of its average earnings during the 1946 to 1949 period, an estimated $5 per share would be exempt from excess profits taxes. Any earnings over and above $5 per share would be subject to the special excess profits tax impost, which may be from at least 50 percent to 75 percent. It is obvious that the higher the "shelter," the more protected are earnings of the company from excess profits taxation.

Curtiss-Wright, Martin and Republic, because of low postwar earnings, have very low "shelters" against excess profits taxes.

In projecting the airline "shelter" from excess profits taxes, the Value Line assumes that the same exemption prevailing during World War II will again apply during 1951 (AVIATION WEEK Aug. 21, p. 52). In other words, as long as an airline's adjusted net income did not exceed its gross mail pay, it was exempt from excess profits taxes. But the advisory service follows a conservative approach and assumes that the average earnings base of 1946-1949 would not be used as a further exemption.

Under such circumstances, high subsidy mail carriers such as Northwest have a large tax exemption. However, it stands to reason that in a time of improved airline earnings, mail subsidies would be cut sharply, reducing their excess tax exemptions under this measure.

The airlines, as a group, would do well to have their normal base for excess profits tax exemptions predicated on invested capital in preference to past earnings, as postwar results have been very poor on average. This base, together with the special mail pay exemption feature, would again place the industry in an unique position from a tax standpoint. —**Selig Altschul**

(Ed. Note: The opinions expressed are those of the advisory service and not necessarily those of this writer. Neither the writer nor AVIATION WEEK stands sponsor to or endorses the advisory service indicated above.)

Recommended Starters—

Because They Are Made for the Job

by ECLIPSE-PIONEER

The first order for an Eclipse Aircraft Engine Starter was placed in 1916. Ever since, operators throughout the world have continued to recommend Eclipse Starters for use on all types and sizes of aircraft power plants. Following is a list of some of the modern aircraft engines for which Eclipse Starters have been designed to do the job.

RECIPROCATING ENGINES

Manufacturer	Model
Allison Division General Motors Corp.	V-1710
Continental Motors Corp.	R-1790 R-9A R-895 R-536 R-402 R-268
Jacobs Aircraft Engine Co.	R-755 R-915
Lycoming Division AVCO Mfg. Co.	GSO-580
Pratt & Whitney Division United Aircraft Corp.	Wasp Jr. (R-985) Series B4 Wasp Jr. (R-985) Series B5 Wasp (R-1340) Series H1 Wasp (R-1340) Series H2 Twin Wasp (R-1830) Series C3
Pratt & Whitney Division United Aircraft Corp. (Continued)	Twin Wasp (R-2000) Series D5 & D13 Twin Wasp (R-2180) Series E1 Double Wasp (R-2800) Series CA, CB Wasp Major (R-4360) Series B3 & B13
Ranger Aircraft Engines Division Fairchild Engine & Airplane Corp.	6-440 SGV-770
Wright Aeronautical Corp.	Cyclone 7 (R-1300) Series C7BA1 Cyclone 9 (R-1820) Series C9HE, C9HD3, C9HD1 Cyclone 14 (R-2600) Series C14BB1 Cyclone 18 (R-3350) Series C18BA1, C18BA3, C18BD1

AIRCRAFT GAS TURBINES

Manufacturer	Model Number	
	Military	Manu.
Allison Division General Motors Corp.	J33-A-10 J33-A-21 J33-A-23	400
	J35-A-10 J35-A-17 J35-A-23	450
	XT-38	501
	XT-40	500
Frederic Flader, Inc.	J55-FF-1	124
General Electric Co. Aircraft Gas Turbine Division	J47-GE-9 J47-GE-11	TG-190
	T31-GE-3	TG-100
Pratt & Whitney Division United Aircraft Corp.	J42-P-4 J42-P-[illegible]	JT-6
	J-48	JT-7
Westinghouse Elec. Corp.	J34-WE-22 J34-WE-30 J34-WE-32 J34-WE-34 J34-WE-[illegible]	24C
	J40-WE-8 J40-WE-10 J40-WE-[illegible]	[illegible]

For Starter Information on Engines not listed, write direct to:

ECLIPSE-PIONEER DIVISION OF

TETERBORO, NEW JERSEY

Export Sales: Bendix International Division, 72 Fifth Avenue, New York 11, N. Y.

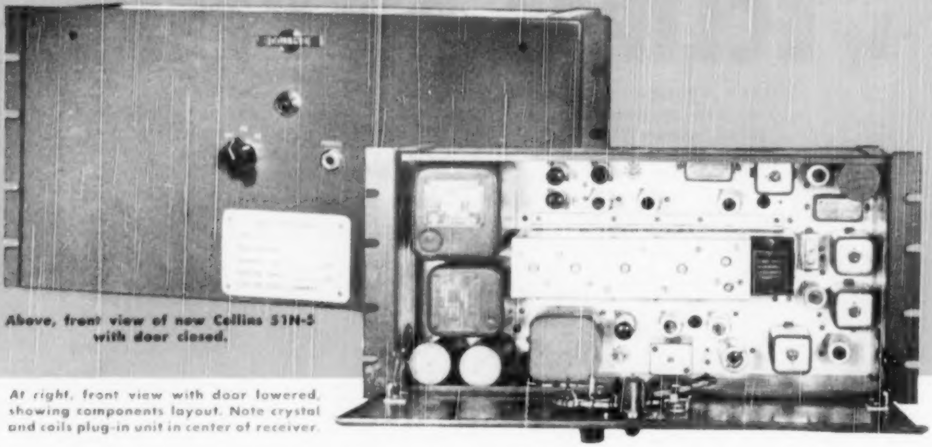
Bendix
AVIATION CORPORATION

ENGINE CONTROL EQUIPMENT • AIR PUMPS • ENGINE STARTING EQUIPMENT • HYDRAULIC EQUIPMENT • ICE ELIMINATION EQUIPMENT • POWER SUPPLY GENERATING EQUIPMENT • POWER SUPPLY REGULATING EQUIPMENT • FLIGHT INSTRUMENTS • AUTOMATIC PILOTS • FLIGHT PATH CONTROL SYSTEMS • ENGINE INSTRUMENTS • NAVIGATION INSTRUMENTS

—LOOK FOR THE MARK OF QUALITY—

[illegible]

Collins 51N-5 receiver



Above, front view of new Collins 51N-5 with door closed.

At right, front view with door lowered, showing components layout. Note crystal and coils plug-in unit in center of receiver.

Engineered to exacting specifications for reception of radio typewriter transmissions

The new 51N-5 is Collins designed for maximum performance and long-time reliability in frequency shift receiving applications.

It is engineered for continuous duty (in pairs) as a sensitive diversity receiver for use with the Collins 706A-2 frequency shift converter. The AVC characteristic is such as to furnish the proper information for the 706A-2's diversity selecting circuits.

Sensitivity is sufficient to give satisfactory reception with minimum r-f signal levels. Selectivity is as narrow as is practical from the standpoint of circuit stability and transmitter channel accuracy. Four tuned circuits ahead of the mixer provide image rejection of 60 db at the highest operating frequency to more than 100 db at the lower frequencies.

An outstanding convenience and time-saving feature is the incorporation of the crystal and all r-f coils for each desired frequency in a single plug-in unit. These crystal and coil units can be pre-tuned to any frequency within the range of 2 to 24 mc.

Write or phone our nearest office for further information.

IN AVIATION RADIO, IT'S . . . COLLINS

COLLINS RADIO COMPANY, Cedar Rapids, Iowa

11 W. 42nd Street, NEW YORK 18 2700 W. Olive Avenue, BURBANK

EQUIPMENT

HAMILTON STANDARD division's new duraluminum-bladed, 13-ft. propeller shown installed on a Trans World Airlines' Martin 2-0-2A.

Airlines Buying Dural Propellers

Douglas DC-6Bs, Martin 2-0-2As and 4-0-4s slated to use Hamilton Standard units; 30% cost saving.

American and United Air Lines will equip their DC-6Bs, now on order, with three-bladed, duraluminum propellers according to Hamilton Standard. Swissair is reported to be following suit. And the airlines can operate at the airplane's maximum design gross takeoff weight of 100,000 lb.

The manufacturer also stated that it had just received a purchase order for 130 dural propellers from the Glenn L. Martin Co. for the 65 4-0-4s going to Eastern Air Lines and Trans World Airlines.

All 84 aircraft (19 are DC-6Bs—11 are for AAL, six for UAL and two for Swissair) were originally specified for steel bladed props; four-bladed on DC-6Bs and three-bladed on 4-0-4s.

Hamilton Standard division, United Aircraft, told AVIATION WEEK that the prime reason for the airlines choosing the aluminum alloy rather than steel blades is a 30 percent cost reduction in initial installation and spares. Another advantage is a weight saving of approximately 50 lb. per propeller. TWA's newly delivered Martin 2-0-2As will also use the dural blade units.

▶ **Tailor-Made** — The manufacturer pointed out that the DC-6B dural blade is a completely new unit tailor-made for the plane and designed to Douglas' established aircraft operating conditions. This is unusual, they continued, since in most cases, propellers in production or "on the shelf" have been so designed that they will meet most aircraft requirements.

The three-bladed propeller (hub model 43E60, blades 6895A-8) is six in. greater in diameter than the four-bladed steel unit it is replacing. Since maximum tip speeds of the steel prop were low, increased tip speeds because of greater diameter of the dural unit were found to be within acceptable limits and increased propulsive efficiency resulted.

In comparison to the three-bladed dural propeller now installed on UAL's DC-6s, the 43E60/6895A-8 unit gives a marked increase in takeoff and climb performance, while cruise performance remains practically unchanged. Ham Standard attributes this improvement to the fact that the blade airfoil section camber was increased and the activity factor (blade width) enlarged. The design incorporates an E rather than a D shank.

The 6895 dural blade will be square tipped, as is the current production steel blade model.

▶ **Cabin Noise Level**—Control tests conducted on the DC-6s indicated that the decreased clearance between prop tip and fuselage resulting from increasing the diameter did not significantly raise the decibel level which was measured in the cabin.

The 43E60 hub of the new prop has already seen considerable airline service on TWA's model 749 Constellations and is now going into service on Chicago & Southern's Connies.

Martin's planes will carry a propeller identical to the DC-6B prop except that the diameter will be reduced to 13 ft. because of ground clearance considerations.

All units will be fully reversible and DC-6B units will incorporate electric deicing.

▶ **Other Customers?**—Ham Standard says that AA conducted tests earlier this year with the 13 ft. dural prop installation on a Convair 240. CAA's Region 1 reportedly endorsed the unit as being acceptable for the plane. It is expected that Region 6, which originally certificated the 240, will give its approval soon.

The manufacturer asserts that Mid-Continent Airlines will be able to avail itself of AA's forthcoming CAA approval, and therefore has purchased a number of similar propellers for its Convair 240s.

▶ **Dural vs. Steel**—C. I. Estes, Ham Standard assistant sales manager, contended that, from a commercial operator's standpoint, steel-bladed propellers were most desirable for large, powerful installations, while the aluminum-alloy blades have no peer when installed on smaller aircraft using less powerful engines.

He stated that to install a dual prop of comparable diameter (16½ ft.) and number of blades to the steel unit on a Boeing Stratocruiser would involve a weight penalty of about 1200 lb. per plane—obviously highly undesirable for an airline. But in the 9-ft. diameter range, as used on the Beech Model 18, for example, the dural prop has a distinct weight advantage over its steel counterpart.

Somewhere between these extremes, Estes pointed out, comes a "no man's land" where the weight differential is negligible; this point is at about the 13-to-13½-ft.-diameter level (on a Convair the dural prop weighs slightly more than a steel one. The 30-lb. weight saving for DC-6B dural propellers comes from a three-bladed unit doing the job of four blades.)

Weight no longer being a factor, operators favor the dural blades because of its considerably lower cost and easier repair. Repair limits are somewhat less flexible for steel blades, and harder to effect, he said.

At Hamilton Standard, steel blade production far exceeds that of duralumin.

New Life Jacket Easier to Handle

An "uncomplicated" inflatable life jacket for airline passengers is being produced by Air Cruisers Co., 32 Wellington Ave., Clifton, N. J. It is designed to keep the head well out of water and to be put on by the uninitiated with a minimum of confusion and instruction by the crew.

At first glance, the new jacket could be mistaken for the "Mae West" used by the Air Force during World War II. The yellow bib, which slips over the head and carries the rubberized Nylon chambers inflated by CO_2 cartridges, resembles the Air Force model. But the strap on the Mae West which goes between the legs, and other mysterious hooks and rings, aren't on the new jacket to trap civilian passengers in a confused tangle.

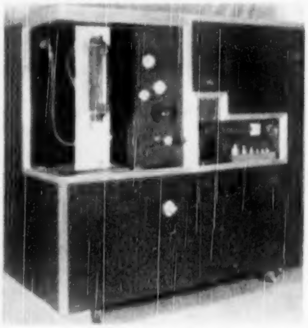
The new jacket, Model AD-4, consists essentially of the large yellow bib and a trailing back piece carrying two straps which are pulled around the waist and snapped to a center strap on the front of the bib. To tighten around waist, the passenger simply pulls outward in a single motion on the loose ends of the straps. These carry hand grips plainly marked "pull".

▶ **Inside-Out OK**—No harm is done if the passenger puts on the vest inside-out. It is reversible and can be snapped on just as quickly this way. To inflate, he jerks the two pull cords at the bottom of the bib. These puncture CO_2 cartridges which fill separate chambers. Each chamber can also be inflated orally.

Cartoon-type instructions inked on the life jacket's back-piece clearly illustrate the proper method of putting on the jacket. The maker says tests have shown that a passenger, without any coaching, requires only a few seconds longer to put on the jacket than airline personnel who have been briefed.

▶ **Advantages**—Air Cruisers considers its

COX INSTRUMENTS



The New Type 9
Calibrating Stand

- Inherent Accuracy
- Results in Pounds
- Weight and Time are Automatic
- One Man, Continuous Operation
- Rugged Construction for Portability
- No Temperature Corrections
- No Density, Pressure, Volume or Area Measurements
- Vapor Sealed & Explosion-Proof

DIRECT WEIGH is the DIRECT WAY

TO MEASURE RATE OF FLOW

• Cox Flowmeter Calibrating Stands utilize a primary method in the Direct Weighing System which is directly sensitive to the two fundamental factors determining rate of flow—weight and time.

Direct Weighing, in which weight and time are automatic, has been developed through long experience in the manufacture of stands for calibrating Cox precision fuel flowmeters for the automotive and aircraft industries.

Direct Weighing is a primary standard because:

- It is a true weighing method directly sensitive to weight without dependence upon density, pressure, volume, or area measurements.
- It is precise due to many long standing refinements which avoid the errors of ordinary weighing.

Direct Weighing is combined with uniquely effective flow control and many other features found necessary to accurate and rapid flowmeter calibration. Instruments in service, including many of the earliest models, have proven to be good investments and continue to pay dividends in reliability and efficiency.

Write for Catalog AW501

COMMERCIAL RESEARCH LABORATORIES, INC.
20 BARTLETT AVE., DETROIT 3, MICHIGAN

Makers of COX INSTRUMENTS Since [illegible]

new model superior to the vest-type life jacket. The greatest advantage of the AD-4, the company feels, is that it more positively keeps the head out of water, protecting the wearer even when he is unconscious. The inflated bib actually crowds up under the chin and around the neck, keeping the head as far out of the water as possible and floating the body about 20 degrees from vertical, on the [illegible].

M. L. Taylor, Air Cruisers' vice president, says vest-type jackets might permit an unconscious person to fall over on his face in the water if only the drawstring at the bottom of the vest is tied, letting the upper portion billow out loosely from the chest.

Further, Air Cruisers believes passengers of various shapes and sizes get more accurate and quicker adjustment of straps with a single outward pull. The fit around the person's waist remains nearly unchanged since there is no inflation in this area. On the vests, the upper drawstring is located in an inflation area. The passenger may tie this string before inflation and, if he is oversize, may find it is too tight, necessitating readjustment of the upper drawstring. He may have to do this in the water.

Air Cruisers says it will modify its older type life jackets into the new version for airlines. One carrier which has sent old jackets in for conversion is Braniff Airways, Inc., according to Taylor.

The AD-4 was designed by James F. Boyle, chief engineer in the firm and former president of Air Cruisers, Inc. (as distinguished from newly formed Air Cruisers Co.). During the last war, Air Cruisers, Inc., turned out about 100,000 B-4 and some B-5 jackets for the government.

AF Buys More Lear Auto Pilots

Air Force contracts in excess of $3,500,000 have been given to Lear, Inc., for automatic pilots and gyro instruments, the company has announced. These contracts, plus previous orders, amount to a backlog of about $12 million.

In addition, Lear says it has been awarded a $400,000 contract by the Defense Department for automatic approach couplers, although according to Richard M. Mock, president, the order has not yet been formally received.

The Lear Automatic Pilot is to be installed in several USAF jet fighters. In conjunction with its associated automatic approach coupler, the automatic pilot will use radio signals to accomplish landing approaches under poor visibility conditions.

UP

WHO . . . You!

WHAT . . . Airwork overhauled Pratt & Whitney engines and complete line of accessories.

WHERE . . . In the air—Airwork overhauled engines are flying more hours **UP,** making money for their operators and owners.

WHEN . . . At any time—you can rely on Airwork overhauled engines for dependable performance.

WHY . . . Careful workmanship on overhauls has enabled operators to get time extensions of as much as 55% on operating time allowed by CAA between overhauls.

HOW . . . By teamwork—Airwork has established a precision production line overhaul shop, which assures utmost quality at lowest cost!

For your overhaul requirements

"Send it to Airwork"

Airwork Corporation distributes the following aviation products: American Brass, Bendix, BG, Champion, Continental, Jack & Heintz, Packard Cable, Pesco, Pratt & Whitney, Romec Pumps, Thompson Products, Titeflex, Tuten Products, and U.S. Rubber.

ONE OF *THE* FOUR
PRATT & WHITNEY DISTRIBUTORS

Airwork
CORPORATION
MILLVILLE, NEW JERSEY
NEW YORK · MIAMI · WASHINGTON

having heat troubles,
Howard?

Well,
here's relief —

THE NEW

hi-shear STEEL COLLAR

Our new steel collar has all the good old HI-SHEAR features, plus the ability to "take it" when the going's hot

The new hi-shear steel collar —

- drives (and trims) as neatly as the aluminum collar.
- uses the same standard riveting tools.
- and has the same small smooth end.

It's still the lightweight and high-strength fastener champ for saucers, missiles and old fashion airplanes!

See your Standards Engineer for call-out numbers and design allowables.

U. S. and foreign patents — Trademark registered

THE hi-shear RIVET TOOL CO.
1559 SEPULVEDA BOULEVARD
HERMOSA BEACH, CALIF.

NEW AVIATION PRODUCTS

Topside Refueler

The ability to deliver fuel hose "on the spot" to the wing for topside refueling, without pulling and hauling from the ground, is a feature which has been emphasized in refueling equipment recently developed. The Aero Cell refueler follows this design approach (AVIATION WEEK Aug. 7). This unit is permanently installed in the airport apron and lifts fuel hose automatically to the upper wing surface.

Another piece of equipment which, though different from the Aero Cell in other respects, supports this refueling philosophy is the Flat Top Refueler, developed by the Heil Co., Milwaukee.

This is an airport fuel truck equipped with an upper deck mounted on the top of the tank, extending its full width and length. Hose lines are carried on the top platform and lie flat for quick servicing. The need for reeling and unreeling the hose is eliminated by this design.

To refuel, the truck simply is backed close to, or slightly beneath, the wing, providing an easy step-up for hand-up of the hose from the truck platform to the upper wing surface. An extra pump, meter and hose for defueling are stored in underslung cabinets on the truck.

The deck is made of expanded steel reinforced with cross bolsters. Long slots or baskets on each side permit the hose to be stored in neat folds without the attention required for reeling.

Heil refuelers are being built in both truck and trailer models, with capacities ranging from 1500 to 6000 gal. The firm says its new Flat Tops already are being used by Shell, Cities Service and Atlantic Petroleum Oil companies.

Plastic-Metal Screws

Screws made of plastic and strengthened by a metal core have been placed on the market by the Foreman Insulating Screw Corp., 401 Broadway, New York.

The new fastener reportedly is comparable in strength and accuracy to a standard metal screw, but has added advantages of electrical insulation and vibration damping. The screw even exhibits self-locking qualities, Foreman says, since the plastic threads, when used with a metal nut, tend to seize and form an effective lock.

An advantage of this type of screw, according to the manufacturer, is that separate insulating components, normally required with metal screws in electrical equipment, are not needed when insulation is integral with the fastener. To illustrate, the company tells of a case where four of these screws replaced 15 parts formerly used in the assembly of an electrical relay.

Essentially, the part consists of a serrated metal core which has been extrusion-coated with a thermo-plastic material.

ALSO ON THE MARKET

Distinct airport markings around tetrahedrons and field windsocks can be made quickly and easily with "Airguide" circle segments of vitrified clay coated with reflective paint. Parts are weather resistant, do not have to be anchored to ground. Address: Robinson Clay Product Co., 65 W. State St., Akron 9.

On tube reducing machine, newly designed to minimize maintenance and to speed production. The saddle—supporting rocking dies which squeeze tubing into shape over internal mandrel—now is carried on rails positioned above tubing. Older machines had saddle and rails located below tubing, an easy target for scale, grit and chips which dropped down on these members and created excessive wear. Address: Tube Reducing Corp., Wallington, N. J.

Potentiometer with low shaft torque (down to 0.003 in. oz.) can be operated by minute hand of wristwatch. It converts "exceedingly" small mechanical force into corresponding electrical voltage. Unit will carry up to 0.1 amp. current, has output sufficient to operate various instruments without amplification. Address: Electro-Mec Laboratory, 225 Broadway, New York 7.

Improved die filer, made by Rice Pump & Machine Co., has work table which can be tilted 15 degrees in four directions (two formerly) for filing or sawing compound angles. Table also can be quickly leveled to precision limits with new dowel pins, eliminating need for indicator working from a surface plate. Deep-throated overarm has been redesigned to "accommodate practically every filing application." Address: Milwaukee 13.

RAPID ACCURATE INSPECTION

Any Metal—Anywhere

4 SIMPLE STEPS

by

dy✓chek

TRADE MARK

the dye penetrant inspection method

PATENT PENDING

Simplified Non-Destructive Testing

Simply clean surface with dy✓chek Cleaner

STEP 1

Simply apply dy✓chek Dye Penetrant *(by brush, spray, or dip)*

STEP 2

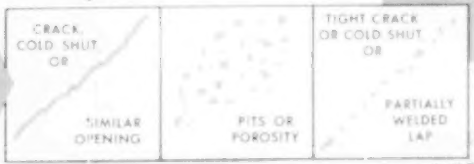
Simply remove excess dye with dy✓chek Cleaner

STEP 3

Simply apply dy✓chek Developer

STEP 4

AND... FLAWS ARE REVEALED


CRACK, COLD SHUT OR SIMILAR OPENING
PITS OR POROSITY
TIGHT CRACK OR COLD SHUT OR PARTIALLY WELDED LAP

QUESTIONS AND ANSWERS

Q. What is Dy-Chek?

A. Dy-Chek is the revolutionary new dye penetrant method of inspection developed by *Northrop Aircraft Research.* It consists of three special liquid compounds easily applied by brush, spray, or dip.

Q. What does it do?

A. Dy-Chek reveals the location, extent, and nature of any flaw having a surface opening or discontinuity in any metal.

Q. Will Dy-Chek work on non-magnetic metals?

A. Yes, it works on *any* metal.

Q. Are special lights required?

A. No lights, booths, electricity, or special installations are necessary.

Q. What kind of metal surface can Dy-Chek inspect?

A. Any kind, including castings, forgings, machined parts, plate, sheet, tubing, pipe, and weldments.

Q. Must the surface to be inspected be specially prepared?

A. The surface need only be clean of dirt, grease, scale, etc. The surface need not be smooth.

Q. Can Dy-Chek be used in the field, for preventive maintenance, as well as in a plant for manufacturing and receiving inspection?

A. Yes, the complete portability of Dy-Chek is one of its great advantages.

LEARN HOW the Dy-Chek method of non-destructive testing can save you time and money in your business. Ask for complete details today.

dy✓chek COMPANY

SOLD DIRECT

division of Northrop Aircraft, Inc.

1513 EAST BROADWAY
HAWTHORNE, CALIFORNIA

dy✓chek is the dye penetrant inspection method

Dy-Chek Company
1513 East Broadway, Hawthorne, California

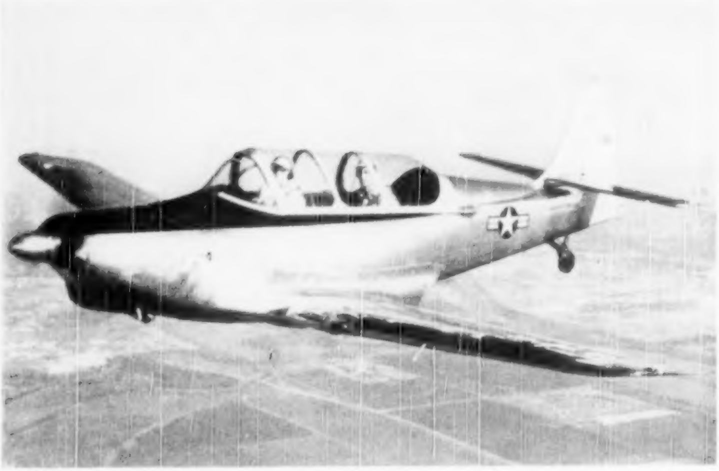
Send by return mail complete details on Dy-Chek, the Dye Penetrant Method of inspection for any metal.

Name ________ Title ________

Company ________

Address ________

City ________ Zone ____ State ________



TEMCO YT-34, production-experienced firm's first original design, competes with

BEECH YT-35, outgrowth of earlier Model 4

Trainer Competition: Fairchild, Beec

By David A. Anderton

On-the-job evaluation is the unique basis of the Air Force's current trainer competition.

Fairchild's T-31, Beech's YT-34 and Temco's YT-35 will be fighting out this competition, first of its kind, in the blue skies over Randolph AFB, Texas.

The three entries will be flown by groups of AF student pilots in the standard basic training curriculum. Students' prowess will be correlated with the particular plane flown.

Out of this procedure will come recommendations for future trainer procurement and probably a fat production order for the winner.

▶ **Unlike Competitors**—Although intended for the same job—that of training AF pilots—the three planes involved are quite unlike. Gross weight and power of the Fairchild T-31 are more than twice those for the little Temco job. Both the Beechcraft YT-34 and the Temco YT-35 show traces of their personal plane ancestry; the Fairchild entry looks like a World War II fighter.

Trainer specifications provided that the airplanes be two-place, that they be capable of night and instrument flying, that they have a range of more than 500 mi. and an endurance of not less than 4 hr.

These requirements, as they stand, are met by each of the three ships in the evaluation. But how they meet the other performance requirements remains to be seen; and the Air Force is going to find out in this logical competition.

FAIRCHILD T-31

Fairchild's T-31 is an improved version of their earlier XNQ-1 trainer built to Navy specifications. The prototype first flew in October 1946; in 1947 and 1948, the plane underwent evaluation at Patuxent and Randolph AFB.

The T-31 has a low wing and a high bubble canopy which covers both student and instructor positions, adding to the fighter illusion.

Outstanding feature of the ship is the safety cockpit originally sponsored by Navy's BuAer. In this layout, control levers are identified with their functions. For example, the landing gear control is a miniature wheel; the flap control, a miniature airfoil section.

Biggest and heaviest of the three trainers, the T-31 has a wingspan of 41 ft. 4½ in. Its overall length is 27 ft. 10¾ in. In the three-point attitude, height over the canopy is 8 ft. 9¼ in.

Gross weight of the craft is 3900 lb.

Power is supplied by a Lycoming R-680-13 radial engine, normally rated at 280 hp., with 300 hp. available for takeoff. A Hamilton Standard two-bladed, constant speed prop is fitted.

▶ **Performance**—After an 1190-ft. run to takeoff and clear a 50-ft. obstacle, the T-31 climbs at 1070 fpm. Service ceiling is 19,500 ft.

Cruise is at 158 mph., with the maximum speed figure at 171 mph.

Stalling speed with full flaps and half fuel is 55.6 mph.

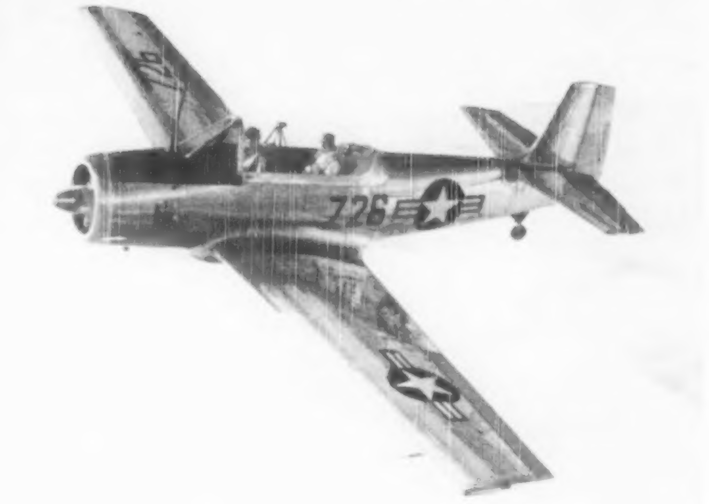
▶ **Changes From XNQ**—Seven differences between the T-31 and its predecessor are noted. VHF and ADF radio have been installed; a new instrument flying hood has been provided. Lighting changes include new landing gear lights on the wing which indicate the gear position to tower operators, possibly saving lots of wheels-up landing; instrument lighting is in conformance with the latest AF training specs. For improved ground handling, a larger capacity brake system is installed, along with a steerable tail wheel.

Cockpit comfortization is improved with a revamped ventilation system.

▶ **One-Time Winner**—Fairchild is, of course, hoping for a repeat on its earlier competition win. That time (March 1949) Fairchild and the USAF released information on an order for 100 T-31 airplanes. But later changes in requirements and considerations of the overall AF program knocked that out.

The Fairchild T-31 enters the competition with over one thousand opera-

ntor, pioneer economy trainer, and



FAIRCHILD T-31, winner of former evaluation, one-time USAF and Navy contract holder.

and Temco

Evaluation at Randolph AFB will correlate student's progress with plane he flew.

tional hours of flight time stacked up behind it, and a record as a past winner.

BEECHCRAFT YT-34

Beech's new trainer is the outgrowth of their earlier Mentor, a logical, but unsuccessful, bidder for Air Force notice. Only three Mentors were built (all with Beech funds), but another 15 months of development, flight testing and engineering followed their building. From all this came the YT-34, of which two were delivered to the AF early this month.

Basic layout of the airplane is clean and conventional, with a low-winged configuration used. Outstanding recognition feature on this plane, as with its two competitors, is the large canopy.

Full instrumentation and radio are installed, so that the student pilot can do either partial or full panel instrument work under the hood. He can also practice radio range orientation.

That bugaboo of trainers past, inability of the instructor to see ahead of the plane, has been eliminated in the Beech entry. The rear seat occupant has enough room overhead to raise the seat to a level above the student's. This feature, coupled with the low-slung position of the engine, makes seeing over the nose a reality.

Tricky feature is the use of a taxi light mounted on the nose wheel strut. The light saves using the main landing lights, and cuts down glare.

Wing span of the YT-34 is 32 ft. 9⅞ in.; overall length, 25 ft. 10⅛ in.; height in three-point attitude, 9 ft. 7 in. Takeoff gross weight is 2750 lb.

Power comes from a Continental E-225-8 engine driving an all-metal constant speed Beech propeller.

▶ **Performance**—At a 2600-lb. gross weight (corresponding to takeoff gross less half fuel), ground acceleration of the plane is rapid. At takeoff, the 50-ft. obstacle height passes underneath 918 ft. from the start.

During the first minute, the YT-34 climbs 1210 ft. After reaching 10,000 ft., the plane cruises at a true airspeed of 157 mph., with the throttle set for 60 percent power. Service ceiling comes at 21,200 ft.

In a dive from altitude, the design airspeed is limited to 280 mph. On the deck, the Beech skims along at 188 mph.

Coming in for a landing, Beech's trainer maintains a 54.5-mph. speed with flaps full down. Aileron control is fully effective throughout the landing path and on to the ground. And on the runway, directional stability is assured by tricycle gear.

For short fields, the YT-34 can be brought to a stop, after clearing a 50-ft. obstacle, in 820 ft.

▶ **Pilots' Reports**—Several hundred hours of flight time have been hung up on the Mentors and the YT-34s, not only by Beech pilots, but also by those wrung-out specialists, Betty Skelton and Bevo Howard. They all seem to concur, says Beech, that the aircraft has excellent flight characteristics.

For aerobatics, the trainer qualifies with an ultimate load factor of 10, claimed to be the highest among today's trainers.

In maneuvers, the craft shows a rapid rate of roll, with little needed correction for adverse yaw. Aileron rolls can be accomplished at either very low speeds or at the more usual entry speeds near cruising. Snap rolls at 120 mph. require only light control forces.

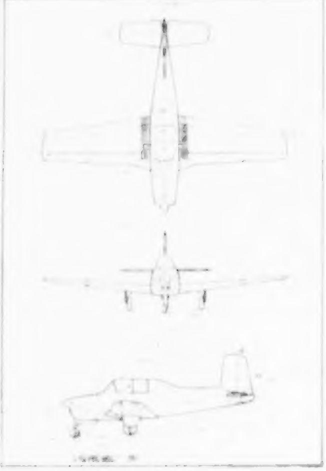
At 100 mph. on the clock, the YT-34 can be rolled inverted and then climbed 500 ft. before the stall.

Power-on stalls in the more conventional configuration with gear and flaps down, come at 50 mph. Stall warning is given by noticeable tail buffeting.

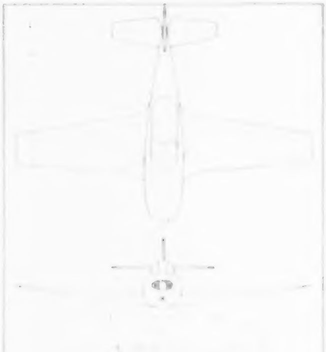
▶ **Same, Only Cheaper**—In general, the performance of the YT-34 follows in the same pattern of the 650-hp. T-6—but it only needs one-third the power to do so.

Somebody has taken the trouble to estimate that each Beech would save 150,000 gal. of aviation fuel during a two-year period over that needed for the T-6, figuring a utilization of 5 hours per day. There would also be, said the

FAIRCHILD T-31



BEECH YT-34



TEMCO YT-35

ance estimates savings in engine maintenance in the amount of $9750.

► **First Orders**—First quantity order for three trainers was placed by the Air Force last March with the Beech concern. The ships were hand-built in the experimental shop.

The YT-34 goes into service testing carrying an ATC under Part III of the Civil Air Regulations. According to CAA, this is the first airplane to be so certificated and subsequently accepted by the Air Force.

Production hasn't been mentioned, but if necessary, Beech could probably exceed the nine-per-day peak they hit with Bonanza production.

TEMCO YT-35

Temco's entry stems from that company's familiarity with the North American T-6 trainer and F-51 fighter (which they built in some quantity during the recent fracas) and, at the other end of the scale, with the Globe Swift (which they manufactured, acquired with Globe's exit from the aircraft manufacturing business, and improved).

The YT-35 Buckaroo was designed to have flight characteristics similar to the T-6 and F-51 but with the extra stability, safety and economy which are prime requirements in the design of trainer aircraft.

Buckaroo sports a conventional landing gear. Wings and horizontal tail are Mustangish, and it must be the vertical tail that gives the side view some of the appearance of the T-6 trainer.

An Air Force standardized cockpit layout is used for student and instructor positions, and a full complement of instruments can be provided.

Biggest claim for the Buckaroo is its fuel economy. At most economical cruise, only 7 gph is drawn from the tanks.

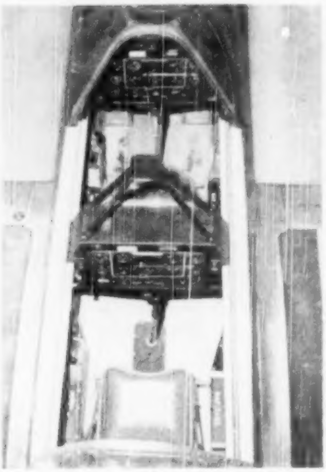
Added attraction is the provision for the installation of two .30-cal. machine guns mounted internally in the wing just outboard of the landing gear. This feature, reminiscent of the Waco and other trainers of the '30s, is intended to appeal to countries operating on a military budget which has had the fat cut out of it. Israel, for instance, has bought one Buckaroo for evaluation by their Air Force.

A tiny plane, the Temco spans 29 ft. 10 in. Overall length and height are 21 ft. 8 in. and 8 ft. 4 in. respectively.

Continental powers this one, too—a model C-145-2HP engine swings a 6 ft. 2 in. Koppers controllable prop.

Normal gross weight for the Buckaroo is 1920 lb.

► **Performance**—Ground handling characteristics of the Buckaroo are claimed to be exceptional, a claim resting on the wide tread (9 ft. 8½ in.) and forward location of the landing gear. A steerable tailwheel further aids taxiing.



T-31 COCKPIT is simple, complete, tidy; features functional design of controls.

YT-35 COWLING is engineered for most efficient handling of cooling air.

Unsticking distance at takeoff with zero wind, half flaps and gross weight of 1920 lb. is 475 ft. At 955 ft. from the start, the 50-ft. obstacle height is cleared.

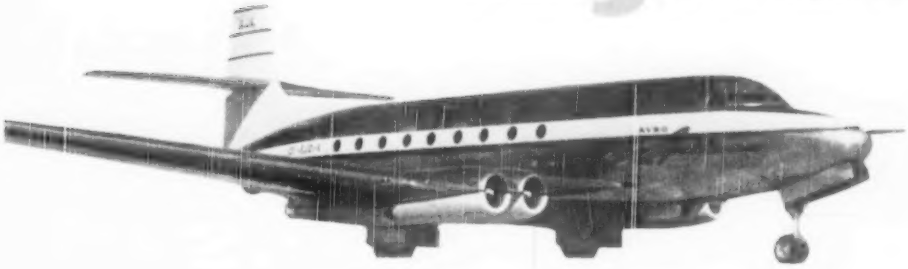
Initial rate of climb is better than 925 fpm., at a climb angle of 14 deg. At 5000 ft., Buckaroo is going up at 750 fpm.; at 5000 ft., the rate of climb is 600 fpm.

Most economical cruise condition is 132 mph. true airspeed at 5000 ft. In this condition, fuel consumption is 7 gph.

Coming down, maximum dive speed is 215 mph. indicated airspeed.

Approach speed at full gross is recommended as 70 mph; landing speed with full flaps is down around 50 mph. Aileron control stays in during the

the AVRO *Canada Jetliner, America's*
first Jet transport,
installs **hytrol**



hytrol... the new automatic braking system by split-second compensation of variables such as runways, brake condition, tire condition pilot technique and other factors, helps make airliners as safe on the ground as they are in the air. This is but one of the recent applications of Hytrol. Designed by Boeing and manufactured by Hydro-Aire. Hytrol is currently being utilized by many airline and airframe companies throughout the world. Hytrol can be installed on any airplane, including rocket or jet powered craft, the small size of Hytrol is a negligible weight consideration. Get the facts on Hytrol and you'll understand why its one of the most important aviation developments in a decade.

SEND FOR DETAILS

A FEW OF THE VARIABLES COMPENSATED FOR BY HYTROL

Runway
TYPE OF SURFACE, DRY, WET, OILY, ICY, HOT, COLD, SLICK, SNOWY

Brake
COEFFICIENT OF FRICTION, LOCKING

Tires
TREAD, WEAR, INFLATION, LOAD IMPACT, BLOWOUTS

Pilot
REACTION TIME TO GIVEN EMERGENCY

hytrol

"MAKING PLANES AS SAFE ON THE GROUND AS THEY ARE IN THE AIR"

EVERY JET
EVERY BOMBER
EVERY FIGHTER
EVERY TRANSPORT
IS HYDRO-AIRE EQUIPPED

HYDRO-AIRE
INCORPORATED

Burbank, California
500 Fifth Avenue
New York, N.Y.

here it is • THE NEW ADEL

3000 PSI NON-INTERFLOW 4-WAY SELECTOR VALVES*

The first
3000 PSI
Non-Interflow
Selector Valve

- EXTREMELY LOW HANDLE LOAD
- NEGLIGIBLE PRESSURE DROP
- EXCELLENT LEAKAGE CHARACTERISTICS
- MORE THAN MEETS PROPOSED AN REQUIREMENTS
- MINIMUM WEARING PARTS

Here's Adel's new line of lightweight 3000 psi, non-interflow 4-Way Disc Type Selector Valves with extremely low handle torque, negligible pressure drop and excellent leakage characteristics. More than meeting the latest proposed AN Specification requirements, they represent the most advanced engineering design for 3000 psi manually-operated Selector Valves. Non-interflow design completely eliminates all undesirable interflow when changing shaft positions. No moving packings under system pressure. Hydraulic sealing is accomplished by hardened surfaces that are optically flat within one eleven-millionth of an inch. Available with or without detents in ¼", ⅜", ½" and ¾" line sizes with a wide variety of flow patterns. ADEL PRECISION PRODUCTS CORP., 10777 Van Owen Street, Burbank, Calif.

#20907 ¼" AND ⅜" LINE SIZE

TOTAL PRESSURE DROP:
15 psi at 2 gpm flow,
37 psi at 3½ gpm flow
HANDLE LOAD:
17 inch lbs. at 1500 psi,
20 inch lbs. at 3000 psi
1 Drop per min. internal leakage max. at 3000 psi

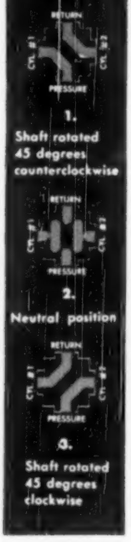
#20908 ½" LINE SIZE

TOTAL PRESSURE DROP
45 psi at 6 gpm
HANDLE LOAD:
22 inch lbs. at 1500 psi,
30 inch lbs. at 3000 psi
1 Drop per min. internal leakage max. at 3000 psi

#20909 ¾" LINE SIZE

TOTAL PRESSURE DROP
60 psi at 10 gpm
HANDLE LOAD:
40 inch lbs. at 1500 psi,
40 inch lbs. at 3000 psi
1 Drop per min. internal leakage max. at 3000 psi

TYPICAL FLOW PATTERNS



1. Shaft rotated 45 degrees counterclockwise

2. Neutral position

3. Shaft rotated 45 degrees clockwise

ADEL

*Patent Pending

ADEL PRECISION PRODUCTS CORP. BURBANK, CALIF. • HUNTINGTON, W. VA.

CANADIAN REP.: RAILWAY & POWER ENGINEERING CORPORATION, LIMITED

whole approach and right on through touchdown.

▶ **Aerobatics**—All standard maneuvers can be performed by the Buckaroo with entries at normal flying speeds.

Stalls are normal with no tendency to fall off on either wing. Warning comes in the form of tail buffeting. Ailerons hold effectiveness completely through the stall (because of the slotted wing) and coordinated turns can be made at stalling speed.

Spins are done with the nose well down, and show no tendency to flatten. Recovery is positive, accomplished in 1½ turns after a 5-turn spin.

▶ **Aluminum Alloy Used**—Most of the Buckaroo's structure is aluminum alloy, with the exception of the movable controls and canopy frames, which are magnesium. Steel forged fittings attach wings and stabilizer. Heavy gage skin is used throughout, and walkways are extra heavy.

Wherever possible, right and left hand units are interchangeable.

The airplane has been sectionalized for ease of assembly and repair. Wing, for example, is made up of tips, outer panels and center section. Average replacement time for a wingtip is ½ man-hour; for an outer panel, 3 man-hours; for a center section complete, 10 man-hours.

Complete engine change can be made in as little as 4 man-hours, using no specialized equipment.

▶ **Initial Order**—In May, receipt of a USAF order for three Buckaroos was announced by Temco. At the same time, it was stated that one Buckaroo had been shipped to Israel for evaluation by the Israeli Air Force.

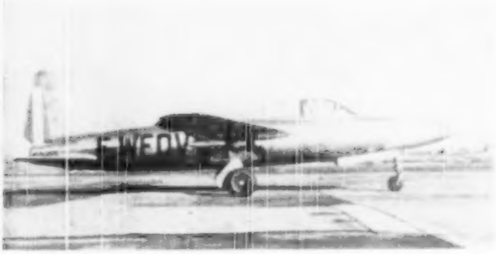
▶ **Epilogue**—There is, of course, much more to any competition than meets the eye. The choice here should be a difficult one to make, and a possible difficulty is lack of enough simple student flights to get any real statistical analysis of plane performance.

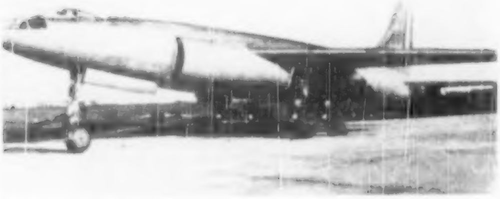
On a basis of pure low cost, Temco would probably come off best; but the YT-35 is their first design. Temco's previous experience has been only with building other people's airplanes.

Performance-wise, Beech's YT-34 seems to do a better job than its rivals, having ceiling, climb and speed advantages over the other two.

But the real test will come when student pilots have hung up operational hours on all three, and when the planes have been subjected to all the indignities produced by students. Then the Air Force will know a lot more about training aircraft than they now do; so will Fairchild, Beech and Temco.

Out of that experience should come the final choice of a standard basic trainer for fledgling pilots.


SO-6020 Espadon: First model of this jet fighter had intake below aft fuselage, corrected in this version with side intakes.


SO-4000: Twin-jet bomber, which had not yet flown as of last month. Cockpit holds two in tandem. Fuselage holds fuel.

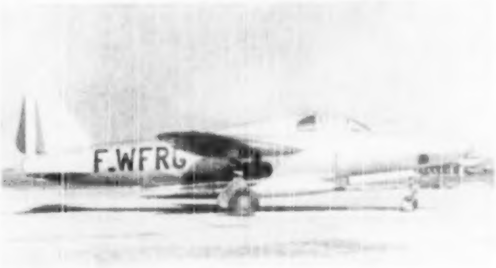
France Pushes Plane Production

In France's progress along the road to aeronautical parity with other major powers, one factor stands out strongly—consistent effort.

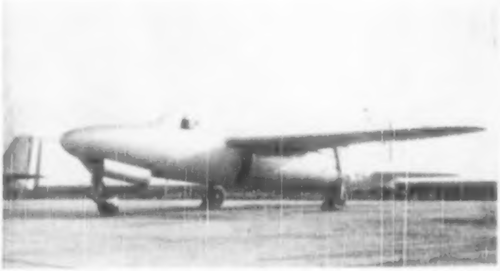
France's endeavor is emphasized because even though its production on major types has been comparatively small, considerable achievement is indicated from what was practically a postwar scratch start in a trying economic period.

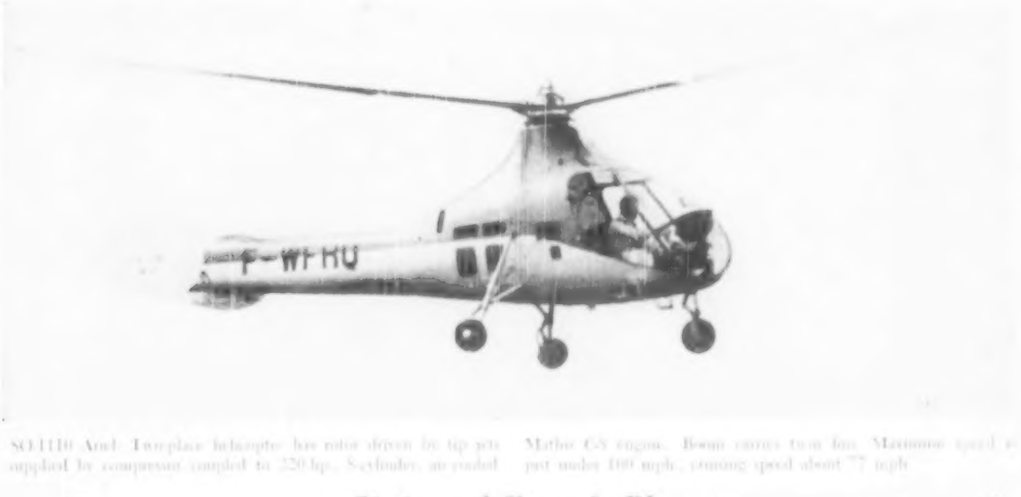
Five of its constructors are nationalized, but one of these is no longer in production. In addition, there are some 1 private companies engaged in aircraft construction.

The accompanying tabulation, based on latest information, shows the status of nationalized company activities.



SO-6025 Espadon: This comparatively new experimental jet has air intake in front part of belly duct, aft part housing rocket unit.


V. G. 90: This sleek Naval jet fighter has wide landing gear tread under 59-ft. wing span. Single-seater first flew late last year.



SO-1110 Ariel: Two-place helicopter has rotor driven by tip jets supplied by compressor coupled to 220-hp., 8-cylinder, air-cooled Mathis G8 engine. Boom carries twin fins. Maximum speed is just under 100 mph., cruising speed about 77 mph.

Status of French Planes →

Aircraft Production of French Nationalized Companies

Arsenal de l'Aéronautique

AIRCRAFT	FIRST FLIGHT	TYPE	PRODUCTION
V. B. 10	7-7-1945	Fighter	Only 3 built
Arsenal 0.101	10-10-1947	Research	Only 1 built
V.G. 70*	6-23-1948	Experimental	Only 1 built
V.G. 90*	9-27-1949	Fighter (naval)	2 prototypes, first destroyed. Production is contemplated.
Air 100	6-10-1947	Glider	2 prototypes; 10 constructed.
Arsenal 4111	6-11-1949	Glider	2 prototypes. No production contemplated.

10 Arsenal 5.501 in production. Guided missiles actually tested.

S.N.C.A.C. (no more production)

(Societe Nationale de Construction Aeronautique du Centre)

AIRCRAFT	FIRST FLIGHT	TYPE	PRODUCTION
NC 211 Cormoran	7-20-1948	Cargo	Only 2 built; 1 destroyed.
NC 271	1-28-1949	Flying model	Only 1 built
NC 701, 702 Martinet	11-1944	Production plane	350 built
NC 840 Chardonneret	11-3-1947	Touring plane	Only 2 built
NC 853	8-15-1948	Trainer	2 prototypes. Production of 140.
NC 856	9-12-1949	Utility	2 prototypes. Limited production.
NC 860	3-28-1949	Utility	Only 1 built.
NC 1070	3-23-1947	Experimental	1 prototype. Modified into 1071.
NC 1071**	10-12-1948	Trainer	Only 1 built.
NC 1080*	7-29-1949	Fighter (naval)	Only 1 built (destroyed).
NC 2001	6-1949	Helicopter	Only 3 built

(Some of these aircraft are in production at S.N.C.A.N.)

S.N.C.A.S.E.

(Societe Nationale de Constructions Aeronautiques du Sud-Est)

AIRCRAFT	FIRST FLIGHT	TYPE	PRODUCTION
SE 1010	11-24-1948	Research, Photographic	1 prototype (destroyed); 3 built
SE 1210	6-9-1948	Flying Model	1 prototype, ½ scale of SE 1200
SE 2010	4-2-1949	Heavy transport	1 prototype (destroyed). 15 in production.
SE 2100	4-30-1945	Touring	Only 1 built (all wing)
SE 2300 10 and 11	10-26-1945	Touring	Only 3 built
SE 2410**	4-30-1950	Bomber-fighter	1 prototype under test.
SE 3000	10-23-1948	Helicopter	1 prototype; 2 in production.
SE 3101	6-16-1948	Helicopter	1 experimental
SE 3110	6-10-1950	Helicopter	1 prototype. Prod. planned.

Vampire with Hispano-Suiza Nene in production (number to be produced restricted).

S.N.C.A.N.

(Societe Nationale de Constructions Aeronautiques du Nord)

AIRCRAFT	FIRST FLIGHT	TYPE	PRODUCTION
SV 4 Stampe	6-1945	Trainer	Belgium license; 200 in service.
Nord 1001, 1002	9-1944	Liaison Trainer	200 built
Nord 1100 Noralpha	3-1946	Touring	200 built.
Nord 1200 Norecrin	12-15-1945	Touring	150 built.
Nord 1221 Norelan	6-30-1948	Trainer, Touring	Only 2 built.
Nord 1400-2 Noroit	1-6-1949	Recon., naval	2 prototypes; 25 built.
Nord 1500 Noreclair	8-29-1947	Torpedo (naval)	Only 1 built.
Nord 1601**	1-24-1950	Experimental	1 prototype under test.
Nord 1700		Experimental	1 prototype.
Nord 1710		Observation	1 prototype. Prod. planned.
Nord 2100	4-30-1947	Light transport	Only 2 built.
Nord 2200**	12-16-1949	Fighter (naval)	1 prototype (damaged).
Nord 2500 Noratlas	9-10-1949	Cargo, military	1 prototype. Prod. planned.
Nord 2800		Trainer, Aerobatic	1 prototype. Prod. planned.
C 800	8-1945	Training glider	250 in service.
Nord 1300	4-1946	Training glider	300 in service.
Nord 2000	6-1947	Glider	100 in service.

425 Goelands in production [illegible] for the Air Force.

S.N.C.A.S.O.

(Societe Nationale de Constructions Aeronautiques du Sud-Ouest)

AIRCRAFT	FIRST FLIGHT	TYPE	PRODUCTION
SO 30 P Bretagne	12-11-1947	Medium transport	4 prototypes; 45 in production.
SO 94	6-16-1947	Trainer (naval)	Production of 15.
SO 95 Corse	7-17-1947	Light transport	1 prototype; 15 built; 45 in production.
SO 1100 Ariel	6-8-1949	Experimental Helicopter	2 prototypes.
SO 4000**	Ground test	Bomber	1 prototype. Prod. planned.
SO 6000 Triton*	11-11-1946	Trainer	4 prototypes.
SO 6020 Espadon*	11-12-1948	Fighter	Only 1 built.
SO 6021*	Ground test	Fighter	1 prototype. Prod. planned.
SO 7010 Pegase	2-22-1948	Light transport	Only 1 built.
SO 7060 Deauville	3-12-1949	Touring	2 prototypes in production.
SO 8000 Narval	4-1-1949	Bomber-fighter	Only 2 built (naval).
SO M1	9-26-1949	Experimental model	1 prototype (glider plus rocket).
SO M2*	4-13-1949	Experimental model	1 prototype (half scale of SO 4000).
SO 6025*	12-28-1949	Experimental	Only 1 built.

* Jet-propelled plane. Number of asterisks indicates number of engines.

READY for any military activity
TWICE AS READY to serve YOU

There'll be no back orders on *your* supply of Turco products. You can count on that... because Turco has just *doubled plant capacity*. Starting last July, Turco jumped head-first into de-moth balling B-29's—almost before the first flash stopped spluttering on the news wires. Since then, from Sand Point NAS in Seattle to MOB, Miami, and from Bangor, Maine, to North Island at San Diego, Turco men and Turco products have been right in the thick of the military job.

Yet—no interruption in your service—and none likely. The new Turco plant at Newark, just purchased, and already under way, doubles capacity. More important, it doubles laboratory facilities—and will speed, by many hours, even days, delivery of material vital to you. Count on Turco.

TURCO PRODUCTS Inc. Cleaning Compounds for all Industry

FACTORIES: Atlantic Division—*120 Lister Avenue, Newark, New Jersey* • Central Division—*Chicago and McCook, Illinois* • Southwest Division—*Houston, Texas* • Pacific Division—*Los Angeles, California* • Sales Branches and Service Centers in more than 100 principal cities

See it Operate!

LATEST MODEL AMP AUTOMATIC WIRE TERMINATOR WILL BE ON DISPLAY IN BOOTH #17 AT THE LONG BEACH ELECTRONICS SHOW

(U. S. Patents #2,396,913, other Patents Pending)

Lowest Installed Cost!

Up to 3300 completely insulated, vibration proof terminations per hour.

This electrically operated AMP machine will terminate leads as fast as an operator can insert them! Special CORROSION PROOFED terminals feed into the crimping jaws in strip form—each automatic stroke yielding a superior vibration proof connection. When AMP PRE-INSULATED* terminals are used, savings are made in labor, time *and* material since additional tape or tubing need not be stocked or applied. There is a wide variety of terminal types and sizes available.

Many mass producers use AMP identification bands with these machines to give permanent code numbers to motor or component leads.

VISIT BOOTH #17 FOR ALL THE LATEST AMP DEVELOPMENTS IN SOLDERLESS WIRING

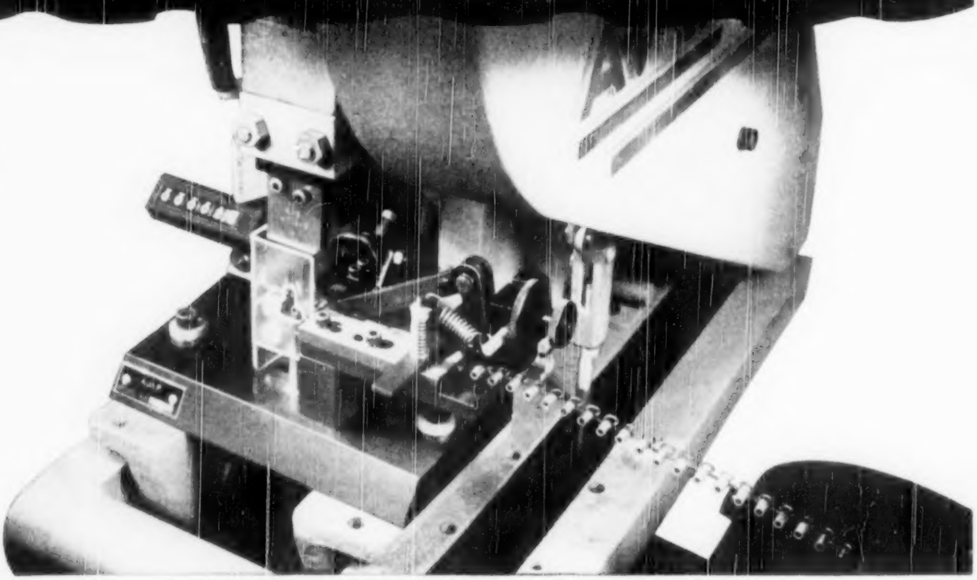
New corrosion proofed terminals will be shown for the first time! Special coding identifies their type and size.

*trade mark

AMP

AMP Trade Mark registered
U. S. Patent Office

AIRCRAFT-MARINE PRODUCTS INC.
1528 North Fourth Street, Harrisburg, Pa.



PRODUCTION

Plenty of Aircraft Aluminum Seen

But supply will be tight and may require rationing, control of exports and non-military domestic uses.

Military aircraft producers will get all the aluminum they need, and as fast as they need it. But it's going to mean controls, and shortages for other industrial users. Both exports and domestic supplies will have to be rationed.

U. S. aluminum production is running at the rate of 1500 million lb. a year, and demands have been exceeding this figure for some time. The 260-million-lb. rough estimate of this year's military needs will put the squeeze on already tight supplies. It may even mean that some producers of civilian items may have to drop certain lines. Next year's military bite will be even greater.

▶ **Expansion Plans**—But, the aluminum industry has plans for expanding its production by at least 200 million lb. a year, maybe 320 million lb. There's a good chance that the U. S. may be able to buy more primary aluminum from Canada, possibly as much as 200 million lb. annually.

While primary aluminum is bound to continue tight, the industry sees no possibility of any shortage developing in fabricating facilities. In fact, industry leaders told the Munitions Board Light Metals Advisory Committee last week that, in an emergency, they could handle double the fabricating business they are doing now.

▶ **Plan Outlined**—A Munitions Board plan to sell potlines and rectifiers out of defense reserve reduction plants at Riverbank, Calif., and Burlington, N. J. to private industry will account for the biggest production increase.

If the deal goes through, it will bring two new primary producers into the field. Here's how the proposition shapes up:

- **Apex Smelting Co.**, Chicago, Ill., now a scrap smelter, would get one potline and one rectifier line for installation near Grand River Dam, Okla.
- **Harvey Machine Co.**, Torrance, Calif., an aluminum extruder, would purchase one line of rectifiers for a new reduction plant to be built near Hungry Horse Dam, Mont.
- **Reynolds Metals Co.** would get one rectifier line and one potline to add to its present 144-million-lb.-a-year Jones Mill, Ark., plant.
- **Kaiser Chemical and Aluminum Corp.** would buy the remaining two potlines and one rectifier line for use in a new plant in Ohio, just across the river from New Haven, W. Va.

All equipment sales will be contingent on production within a year.

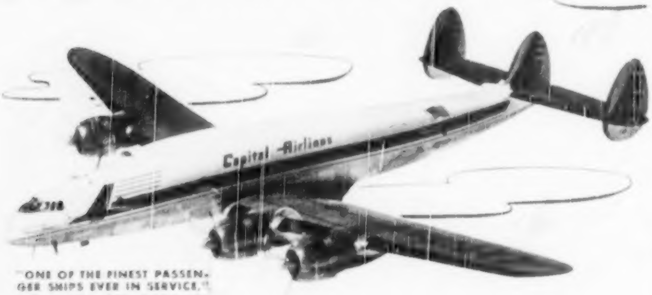
▶ **Needs Still Uncertain**—Odds are the sales will go through as planned, though some of the buyers have expressed reluctance to make the step until they know just how much aluminum the military will need over the next few years. These figures won't be available until December of this year.

If Alcoa can make some kind of a deal for keeping its old Massena, N. Y., plant in operation, another 113 million lb. will be added to current production. Alcoa's plans now are to shut down as soon as it gets its recently purchased Defense Plant Corp. plant into production fully. Reason is that there isn't enough cheap St. Lawrence River power to run them both.

There's a chance the government might pay Alcoa to operate the plant for stockpiling. Utility companies

BH
B.H
fabricators for the aircraft industry
B.H. AIRCRAFT CO. INC.
FARMINGDALE, NEW YORK

The new Capital Constellation . . .



"ONE OF THE FINEST PASSENGER SHIPS EVER IN SERVICE," is the opinion of the insiders who have previewed the Capital Constellation. In it, Lockheed Aircraft has combined unexcelled engineering performance with the ultimate in passenger comfort, luxury and safety.

. . . completely equipped with Fenwal Fire Detectors

Cutaway view of Fenwal Fire Detector Unit; hermetically sealed, complies well within CAA Technical Standard Order C-11 in accordance with Society of Automotive Engineers Specification AS-401. A rugged, simplified, dependable, economical unit.

Capital Airlines goes all out for maximum safety and efficiency in air transportation with the new Constellation. That is why it is completely equipped with Fenwal Aircraft Fire Detectors. These Fenwal hermetically sealed units are permanently calibrated. Shock and vibration cannot affect them. Easy to install . . . single terminal prevents connection errors. They require no bulky panels, relays nor supervisory instrumentation. No wonder more and more airlines are depending on Fenwal's positive protection.

For further information, write Fenwal, Incorporated, 128 Pleasant St., Ashland, Massachusetts.

Fenwal

TEMPERATURE CONTROL ENGINEERS

THERMOSWITCH®

Aircraft Fire and Over-Heat Detectors

SENSITIVE... *but only to heat*

nearby have promised they can supply the power, though at high cost.

► **Canada Can Help**—Altogether, this would raise current production to 1600 million lb. annually. A clue to whether aluminum will really be short for nonessential users will be found in whether or not Aluminum Company of Canada will boost its exports to the U. S. Alcan is now producing at the rate of about 750 million lb. a year, against a capacity of 950 million lb. If this difference were shipped to the U. S., odds are that shortages would be slight and spotty unless the military materially raises its sights again.

One thing is pretty certain: Washington will quickly set up domestic allocation controls on aluminum and conservation export controls as well. Demands due to military aircraft orders aren't expected to be felt much for some months, but Washington wants controls just in case.

Control of domestic aluminum uses can be expected soon after President Truman signs the Defense Production Act of 1950. Export controls for conservation purposes may come even sooner.

PRODUCTION BRIEFING

► **Beech Aircraft Corp.** has exercised its option to rent Herington Airport from that city. Company officials declined to comment on the move except to say that they were anticipating need for space which would accommodate large planes. The base was used in World War II as a B-29 modification center.

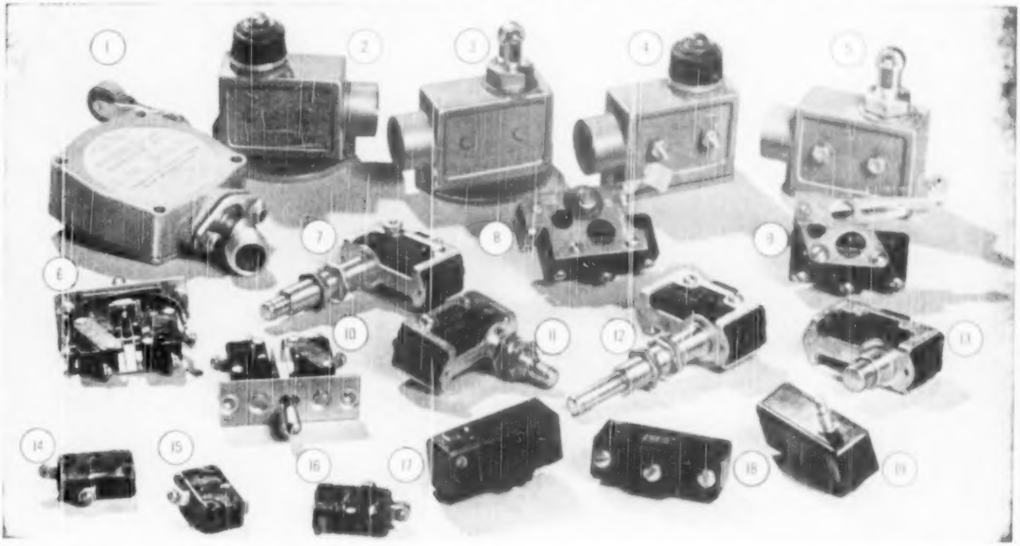
► **Boeing Airplane Co.** has purchased a sizeable quantity of A-12D Sperry Gyropilots for installation in B-47B bombers.

► **Kollsman Instrument division** of Square D Co. has reduced Synchutel prices 45 percent below the original prices of the laboratory-made units. Prices are now $45-$75, depending on quantity purchased. Reduction was made possible by recently introduced standard tooling and methods.

► **Lear, Inc.** has acquired the balance of 9600 sq. ft. of space in its main building at Grand Rapids, Mich., upping main plant area to 148,000 sq. ft.

► **Skyline Products, Inc.**, Jamaica, N. Y., has received an order from American Airlines to modify 34 DC-6 buffet assemblies. The company previously completed engineering and development of a prototype redesigned unit of buffet equipment to be installed in DC-6Bs currently on order with Douglas.

MICRO...first name in "AN" precision switches —for every aircraft design need!



1 MICRO type LMR aluminum housing with rotary type roller arm actuator, supplied without switch enclosed, or with *AN3210-1* or *AN3216-1* enclosed, and with or without ground strap. Conforms to *AN3233-1, 2, 3, 4, 5 and 6.*

2 Lightweight, rugged, aluminum-housed switch with sealed plunger (MICRO BZV-7RNT1), bottom mount design, conforms to *AN3217-2.*

3 Aluminum-housed switch (MICRO BZV-7RQ9T1) with adjustable roller plunger actuator, bottom mount design, conforms to *AN3218-2.*

4 Lightweight, rugged, aluminum-housed switch with sealed plunger (MICRO BZE-7RNT1), side mount design, conforms to *AN3217-1.*

5 Aluminum-housed switch (MICRO BZE-7RQ9T1) with adjustable roller plunger actuator, side mount design, conforms to *AN3218-1.*

6 Momentary position two-unit toggle switch assembly for alternately opening and closing two circuits (MICRO 1AT1). Conforms to *AN3235-1.*

7 Actuator bracket (MICRO MC2711B) conforms to *AN3168-1.* For use with single-pole double-throw basic switch (MICRO BZ-R31) which conforms to *AN3210-1* or with split contact double-throw switch (MICRO BZ-3YT) which conforms to *AN3216-1.*

8 Lever arm actuator bracket that has provision for resetting the basic switch while actuator arm is depressed (MICRO 9-10762LH). Conforms to *AN3170-2.* Right-hand design (MICRO 9-10762RH) conforming to *AN3170-1* also available. For use with MICRO basic switches BZ-R31 and BZ-3YT, which conform to *AN3210-1* and *AN3216-1,* respectively.

9 Roller lever actuator bracket (MICRO AD5721B) conforms to *AN3169-1.* For use with single-pole double-throw switch (MICRO BZ-R31) which conforms to *AN3210-1* or with split contact double-throw switch (MICRO BZ-3YT) which conforms to *AN3216-1.*

10 Momentary position two-unit toggle switch assembly for actuating two double-throw V3-1 switches. Actuator assembly with switches conforms to *AN3235-2* (MICRO 1AT2). The MICRO V3-1 switches in the assembly conform to *AN3234-1.*

11 Actuator bracket (MICRO MC2711) conforms to *AN3168-2.* Designed for use with MICRO single-pole, double-throw basic switch BZ-R31 which conforms to *AN3210-1* and with MICRO split contact double-throw basic switch BZ-3YT which conforms to *AN3216-1.*

12 Actuator bracket (MICRO MC7711) conforms to *AN3167-1.* For use with MICRO single-pole double-throw basic switch BZ-R31 which conforms to *AN3210-1* and MICRO split contact double-throw basic switch BZ-3YT, which conforms to *AN3216-1.*

13 Actuator bracket (MICRO MR2731A) conforms to *AN3166-1.* Designed for use with MICRO single-pole double-throw basic switch BZ-R31, which conforms to *AN3210-1,* and MICRO split contact double-throw basic switch BZ-3YT, which conforms to *AN3216-1.*

14 Small, compact MICRO V3-21 normally-closed switch conforms to *AN3234-3.*

15 Small, compact MICRO V3-23 normally-open switch conforms to *AN3234-2.*

16 Small, compact MICRO V3-1 double-throw switch conforms to *AN3234-1.*

17 Split contact double-throw "pin" plunger basic switch (MICRO BZ-3YT) conforms to *AN3216-1.*

18 Single-pole double-throw "pin" plunger basic switch (MICRO BZ-R31) conforms to *AN3210-1.*

19 Single-pole double-throw "S" plunger basic switch (MICRO BZ-7RST) conforms to *AN3215-1.*

MICRO SWITCH

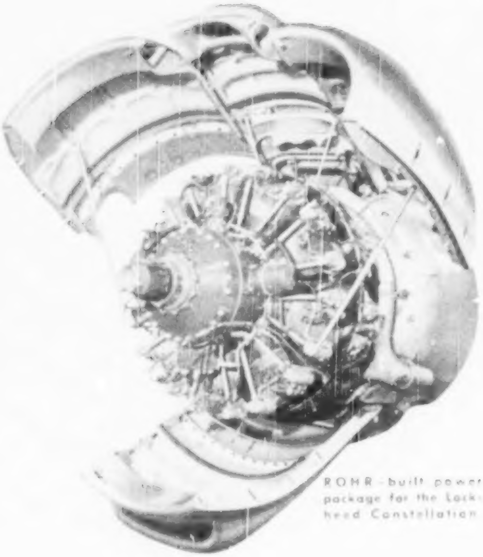
DIVISION OF MINNEAPOLIS-HONEYWELL REGULATOR CO.

FREEPORT, ILLINOIS, U.S.A.

Branches in principal cities of United States and Canada

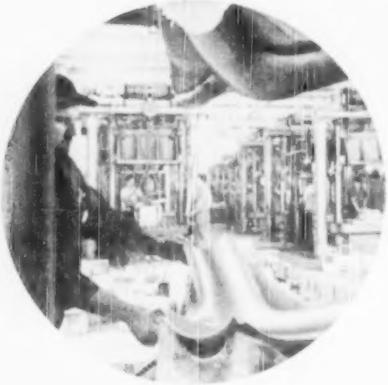
BETTER! FASTER! CHEAPER!

An Exhaust System . . . a Complete Power Package — ROHR builds these and other products for such famous names in Aviation as Boeing, Convair, Lockheed, North American and many more. ROHR'S proven production skills, equipment, engineering ability and experience are available to you, too. When it's made of metal . . . and you want it better! faster! cheaper! wire, write or telephone ROHR.



ROHR-built power package for the Lockheed Constellation

ROHR



ROHR
AIRCRAFT CORPORATION

9 miles from San Diego . . . in Chula Vista, California . . . home of the '53 World's Fair

◀ One of the many ROHR-designed drop hammers now in operation at ROHR.

COINS STAND ON EDGE and water doesn't spill in vibration-free cabin of Viscount.

Passenger Reaction to Turboprop

BEA assigns Viscount prototype to busy London-Paris route, and here's what the customers think about it.

By Frederick R. Brewster

McGraw-Hill World News

London—The time is past for questioning whether or not turbine-powered airliners are coming. They're here.

The traveling public now has its first chance of experiencing the comfort of the turboprop transport's quiet, vibration-free flight.

The airline operator, too, can begin to size up passenger response to tomorrow's turbine planes compared with today's piston craft.

British European Airways, first operator to place a firm order for the Vickers-Armstrongs' Viscount turboprop airliner, jumped the gun Aug. 3, and placed the prototype Viscount in regular operation between London and Paris, making two round trips a day. Then beginning Aug. 15 the Viscount was scheduled to ply between London and Edinburgh once a day for a week to take some of the peak passenger loads confronting BEA as the Edinburgh Festival opened.

After Aug. 22 the Viscount was to be operated between London and Paris as often as passenger traffic warrants it, to train BEA's crews and the air-traffic controllers of the London zone.

The Viscount is replacing BEA's piston Vikings on the Paris service and Dakotas (DC-3s) on the Edinburgh route. No extra charge is being made. But although the Viscount flights are being regularly scheduled, there is no guarantee to the passenger booking a seat that he'll be flying in a Viscount on that particular service.

▶ **First Trip**—Your correspondent was on the first trip to Paris on Aug. 3. But two preinaugural flights had been made earlier—one July 28, with no revenue passengers, and another on July 29 with a number of British aviation bigwigs, including Sir Frank Whittle, creator of the gas-turbine engine.

On this same flight, a number of Americans, including PAA's Atlantic Division sales manager, D. J. Mangan, found themselves aboard as revenue passengers although booked for the regular BEA service.

The prototype Viscount had been booked to fly a second section of the regular London-to-Paris Flight 320 on this day, a Saturday, because BEA was faced with some of its heaviest traffic of the summer to the Continent and rounded up every available plane. The same situation occurred in succeeding weeks.

▶ **Fastest Service**—Taking off at 12:56 pm. from Northolt Airport, the Viscount touched down at Paris (Le Bourget) 57 min. later, a reduction of 33 min. from the regular scheduled time of 90 min. for the service.

This was probably the fastest scheduled passenger service between London and Paris and certainly the fastest between Northolt and LeBourget.

And, judging by the flight made on Aug. 3 by your correspondent, it was certainly a big step forward in flight comfort.

BEA took care to inform its passengers on the regular services flown by the Viscount that they were among the first to experience the newest and finest standard of airliner accommodation and reminded them that BEA had ordered 28 of these Viscounts in a slightly larger version which will begin regular service on BEA's routes in the spring of 1953.

▶ **Quiet Comfort**—Early analysis of passenger comments shows a definite appreciation of the quietness and almost vibrationless comfort of the Viscount with its four Rolls-Royce Dart turboprops. Indeed, the whine of the cabin pressurization blower is more noticeable to the ear than the smoothly rotating turbine and propeller. When the silencers now being developed for the

Viscount Flight

Here are BEA's figures for the first turboprop Viscount London-Paris passenger flight:

Distance: 237 statute mi.

Takeoff weight: 42,500 lb. (each engine delivering 1125 shp. at 14,500 rpm.).

Fuel weight: 3807 lb. (ample for an endurance of 2 hr. 14 min., or London-Paris and return, plus 23 min. reserve).

Payload: 6700 lb.

Actual flight time: 57 min.

Block-to-block time: 1 hr. 6 min.

Block speed: 216 mph.

Fuel consumption: 323 imperial gal. (290 gph. or 11.13 lb./mi.).

Fuel consumption during climb: 300 gph.

Fuel consumption during cruise: 265 gph.

Fuel consumption during descent: 165 gph.

Cruising at 10,500 ft., at a true air speed of 265 mph., at 13,500 rpm., the engines deliver 625 shp. each.

For cruising at 18,000 ft. (the service ceiling of the prototype), BEA has the following figures for a typical flight:

Climb stage: would take 25 min., cover 70 nautical mi., use 135 gal. of fuel.

Descent stage: would take 20 min., cover 62 mi., use 57 gal.

Cruise stage: over London-Paris route, would cover about 90 mi., use 150 gal.

blower fan are fitted) as they will be in the production-model Viscounts—this complaint, noted by a few passengers as well as by your correspondent, should be eliminated.

Passengers were pleased with the large windows in the Viscount, located so the passenger can comfortably watch the scenery roll by while leaning back in his seat.

A few criticisms were received that the pitch of the seats was too upright, and leg-room insufficient because of the fixed-location tables between the paired facing rows of seats, but these objections will probably be attended to in fitting out the more spacious cabins of the production-line Viscounts.

▶ **Flight Plan**—On the flight made by this writer, the prototype Viscount (displayed last September at the SBAC Show at Farnborough, with its red BEA markings against the silver fuselage) rolled gently to the end of the main east-west runway at Northolt with its full load of 25 passengers.

Our turn came to take off. The Viscount swung into place, and without the ear-deafening and bone-shaking full-power run-up of the engines that is a familiar and unpleasant part of a piston-engine takeoff, we rumbled down the tarmac and lifted easily into the air after using about two-thirds of the runway length. (Several passengers, in their comments, showed that they noticed and approved this absence of preliminary run-up.)

Almost immediately we were in the clouds and soon above the low overcast, climbing at about 900 fpm. with the indicated airspeed 147 knots (170 mph). We climbed steadily for 19 min., to 11,500 ft., where we leveled off for the cruise across the Channel. Yet, during the whole of the climb there was no noticeable pressure drop—the cabin was kept pressurized to the equivalent of 1500 ft. altitude.

When we descended, beginning some 15 minutes before touching down at LeBourget, the pressure was again nicely equalized, and for the first time in all my airline flights, I was not troubled with the discomfort of pressure building up in my ears. We landed just 62 minutes after taking off from Northolt.

▶ **Pleasing Contrast**—Before the return flight, when the Viscount was checked over, it was found to have developed a split in the port hydraulic accumulator line, and required several hours work. So it did not make its scheduled departure for London on the first of its roundtrips.

Those passengers that were scheduled for that regular departure flew back two hours later in a regular Viking instead.

The observers had the perfect contrast between the old and the new, the smooth and the quivering, the fleet and the not-so-fleet, the high-flying and the cloud-chasing—and ended up more than ever in favor of the turboprop transport.

▶ **Production Models**—The production-version Viscount—the 701—will have a greater wingspan, engines spaced wider apart, a longer fuselage and will add an extra luggage compartment in the nose region. This extra baggage space should permit better locating of the plane's center of gravity when the passenger load is somewhat lighter. BEA figures it will operate at an all-up takeoff weight of 50,000 lb., which will give more than double the payload of the prototype. This will permit carrying 40 passengers plus some cargo. The airline plans to operate these turboprop planes at 25,000 ft. at a cruising speed of 312 mph., with a fuel consumption at that altitude and speed of 242 gph.

Delivery of these production-model Viscounts will probably not begin until the fall of 1952. And since there will be no advantage in introducing these large-capacity planes during the low-traffic winter period, BEA will probably run them first as freighter planes and for additional crew-training. Passenger service will probably begin in the spring of 1953.

When replacing DC-3s on the London-Edinburgh route, the prototype Viscount should cut the scheduled 2 hr. 20 min. time to approximately 1 hr. 40 min. Owing to the limited size of Turnhouse Airport at Edinburgh, the Viscount will be limited to a passenger load of 23 on these flights.

▶ **Like A Bike**—BEA officials told Aviation Week that there is no problem in conversion-training of aircrews to fly the Viscount—"She handles like a bicycle" was the way they put it. But the real training problem is one of getting the most out of the powerplants for maximum fuel economy. Rolls-Royce and BEA engineers are still tackling this question, and the pilots will have some new tricks to learn before BEA will be able to call the problem licked.

Aerodynamically, however, BEA is fully satisfied with the prototype Viscount—she has been put through every possible kind of test, all kinds of landings and takeoffs—including some with full flap—in the full range of altitudes to be encountered on BEA's services. The prototype holds the full ICAO "A" category certificate, as will the production Viscount once it has undergone the sequence of tests required by Britain's Air Registration Board.

On the Viscount's recent trip around Europe and to Africa, considerable interest was shown by pilots of other airlines, and very few criticisms were offered by them.

▶ **Opportunity**—Initial passenger reactions generally have to be discounted since they are obtained under somewhat artificial circumstances.

But by placing the Viscount on a fiercely competitive route (London-to-Paris), where it will be in direct comparison with piston-engine types, BEA has placed itself in the best possible position to hear the comments of passengers—to note when they begin asking to travel on the Viscount instead of the Vikings, to observe when they switch to BEA's Viscount from some other carrier flying even the latest of postwar piston-engine types.

PLANTATION SPECIAL

Here are a few of the 3,875,000 bagged pineapple tops being flown by Hawaiian Airlines' cargo DC-3 from Maui and Molokai for test seeding in Hawaii. Castle & Cooke, Ltd., sugar factors, are experimenting to see whether some of the company's land, now in sugar, would be more profitably put to use by growing pineapples. The concern found that airlift would do the job faster and more economically. Hawaiian is making 220 flights to handle the job over a two-months period.

BEA has seized an opportunity, too, for confirming in the toughest of proving grounds—regular daily service—whether all its calculations as to operating costs are sound and whether, therefore, the Viscounts will be economical to operate. Other operators may get a glimpse of these figures, but BEA will have the lead on them.

It has always been agreed that the real filip to sales of turboprop and turbojet transports would come only when such planes were introduced in direct competition with earlier types. BEA, by not waiting until the production models come out, has done Vickers-Armstrongs—and all manufacturers of turbine airliners—a real service.

Carrier Reports

Domestic trunkline net profits remain high, but dip below first-half '49.

Net profits realized by the 16 domestic trunklines in first-half 1950 dipped only slightly below the record peacetime levels achieved during the same period last year.

A continued flow of optimistic traffic reports provides some possibility that 1949's net earnings may still be exceeded when second-half 1950 results are in. From the standpoint of operating profits, the domestic carriers are already far ahead of last year.

▶ **Down A Million**—The 16 trunklines made $5,505,570 net profit on domestic services in the first six months of 1950, compared with $6,511,865 last year. Operating profits rose from about $10.5 million in first-half 1949 to around $13.5 million in first-half 1950.

Thirteen of the 16 carriers made money during the first six months of 1950. Only ten were in the black in the same period last year.

Biggest domestic earnings gains over last year were scored by Braniff Airways, Delta Air Lines, Eastern Air Lines, National Airlines, TWA, United Air Lines and Western Air Lines. Northwest Airlines, which lost $4,714,630 in first-half 1950, compared with a $334,000 deficit in the same 1949 period, suffered the greatest financial setback. American Airlines (hurt by a strike in March) and Colonial Airlines were also on the downside.

▶ **Dividend Declared**—American's earnings during the second quarter bounced back so strongly that the carrier has declared a 25-cents-a-share dividend on its common stock payable Sept. 15. It was AA's first common stock dividend since 1945.

SPECIALISTS
in
HEAT
TRANSFER

Young Engineering stems from a background begun during World War I, perfected during World War II, and expanded to meet today's needs of the Aircraft Industry. Whether your requirements are routine or specialized, we invite your inquiry.

YOUNG

Heat Transfer Products for Automotive and Industrial Applications.

Young Quality

Heating, Cooling, and Air Conditioning Products for Home and Industry.

T. M. REG. U. S. PAT. OFF.

YOUNG RADIATOR COMPANY
Dept. 170-H, Racine, Wisconsin
Plants at Racine, Wisconsin and Mattoon, Illinois

STEEL

AIRCRAFT STAINLESS

AIRCRAFT ALLOYS

and other steels in Stock

BARS, CARBON, ALLOY & STAINLESS STEEL—Hot rolled and cold finished—alloy and stainless bars in both aircraft and standard specifications.

STRUCTURALS—Channels, angles, I and H beams, etc.

PLATES—Many types including free machining and abrasion resisting carbon steel, Allegheny stainless, Inland Hi-Steel, Inland 4-Way Safety Plate, etc.

SHEETS & STRIP—Many types of hot and cold rolled carbon steel, Allegheny stainless to Aircraft and standard specs., Aircraft Quality alloy strip, etc.

TUBING—Low carbon, cold drawn seamless and welded mechanical tubing, Allegheny stainless tubing and pipe, seamless and welded boiler tubes, hydraulic tubing, structural tubing, etc.

Emergency demand has cut into many kinds and sizes but over-all stocks are still large and diversified.

Immediate Delivery from—

RYERSON

JOSEPH T. RYERSON & SON, INC. PLANTS: NEW YORK, BOSTON, PHILADELPHIA, DETROIT, CINCINNATI, CLEVELAND, PITTSBURGH, BUFFALO, CHICAGO, MILWAUKEE, ST. LOUIS, LOS ANGELES, SAN FRANCISCO

EKLO INDUSTRIAL COLD LOW-TEMPERATURE CABINETS

. . . for all Industrial Cold Treatment

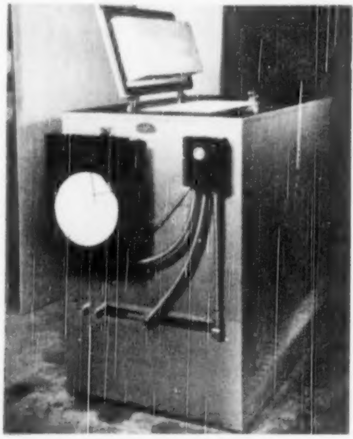
● EKLO Low-Temperature Cabinets economically fill a great variety of needs in the aeronautical field. It is a completely self-contained unit — cabinet, motor, compressor, and indicating dial. All that is necessary to operate is to hook up to water and power lines. Our facilities are available for production of units differing in capacity, range and shape to accommodate size of materials to be treated. These special units range from -40 F to -100 F and can be equipped with indicating and recording gauges according to need.

● We will gladly submit estimates on receipt of particulars as to capacity needed, maximum low temperature required, speed of pulldown, and description of material to be processed. We invite your inquiries and would like you to have our circular which gives detailed description. Send for it!

Used to Advantage for following . . .

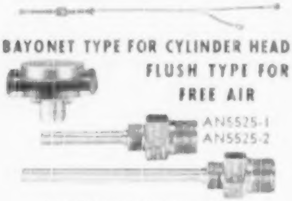
- expansion fits by controlled cold treatment of metals
- cooling rivets
- stabilizing of tools, gauges, dies, drills, taps, and bushings
- production control tests
- normalizing by intermolecular stabilization
- seasoning and ageing
- retarding ageing in aluminum
- elimination of warp, run-out, and growth
- cooling and shrinking

INDUSTRIAL COLD CO.
14550 THIRD AVENUE
Detroit 3, Michigan



Model 100-2 showing continuous temperature recording dials. Cools to —100° F.

LE LEWIS LE
STANDARD & SPECIAL
BULBS
FOR USE WITH
RESISTANCE THERMOMETERS



STANDARD "AN" BULBS

In addition to the standard models illustrated, we have developed special high temperature bulbs that will withstand 500° F for a minimum of 500 hours, as well as bulbs with long stems or special threads.

All of these bulbs may be used with our standard aircraft resistance thermometers.

THE LEWIS ENGINEERING CO.
CHURCH ST. • • • • NAUGATUCK, CONN.

RELIABLE
ACCESSIBLE
COMPACT!
VHF RECEIVER
TYPE RV-1-B

Because all wiring is on the bottom, the entire chassis of this compactly designed receiver may be exposed and turned over for inspection or servicing . . . then replaced in rack without disconnecting or interrupting reception! Panel height only 5¼" for a standard 19" relay rack permits more economical use of space. Ideal for any receiver installation where static-free, interference-free service is required. Adaptable for remote control use!

IMMEDIATE DELIVERY

For complete technical data write now for Bulletin 5011.

COMMUNICATIONS DIVISION
RR RADIO RECEPTOR CO., INC.
Since 1922 in Radio and Electronics
84 N. 9th St. • Brooklyn 11, N. Y.

Airline Profits

First-half 1950 and 1949
(Domestic operations only)

Carrier	1950	1949
American	$2,492,098	$5,495,553
Braniff	303,824	19,907
Capital	979,792	932,112
C & S	147,102	202,197
Colonial	(258,625)	38,059
Continental	3,504	(145,881)
Delta	872,895	812,910
Eastern	2,848,298	3,282,663
Inland	114,169	110,466
Mid-Cont.	134,291	148,490
National	1,155,541	805,723
Northeast	(289,805)	(119,284)
Northwest	(4,214,628)	(334,086)
TWA	392,995	(503,548)
United	639,457	(725,619)
Western	58,910	(70,528)
Totals	**$5,305,170**	**$6,311,886**

Parentheses indicate deficit.

Sharp gains in domestic operating revenues during first half 1950 resulted from an 11 percent increase in revenue passenger-miles flown and hikes of 23 and 19 percent, respectively, in express and freight-ton miles flown. First reports on summer business were also encouraging.

United flew 83 percent more passenger miles in July than in the same month last year. Its freight volume was up 51 percent, express 75 percent and mail 15 percent.

National Airlines disclosed a $52,000 operating profit in July, compared with a $95,000 loss in the same month last year. July is usually a slack month for NAL. The carrier attributed its improved performance to an aggressive sales effort, continued popularity of excursion and family fares, the availability of low-rate air coach service, and Florida's burgeoning as a summer resort.

▶ **Feeders Gain**—A number of feeder lines are also showing signs of recuperation from a pallid financial past. Trans-Texas Airways, which suffered a $244,000 operating loss during first half 1949, had a $44,850 operating profit during the same period this year.

Several of the short-haul carriers boasted impressive passenger load factors during June. Wisconsin Central Airlines reported that nearly 54 percent of its seats were filled during the month; Southwest Airways reached 51 percent; Robinson Airlines 44 percent; West Coast Airlines 42 percent and Pioneer Air Lines 41 percent.

In July, Wisconsin Central's passenger traffic soared 22 percent above the same month last year.

▶ **Cargo-Line Strength**—Two certificated all-cargo lines, Slick Airways and the Flying Tiger Line, have made financial gains over 1949. With the help of a $63,281 second-quarter profit, Slick cut its first-half 1950 net loss to $84,506. The Tigers' $511,638 first-half profit was substantially more than the $275,122 earned during all of last year.

U. S. international carriers showed no consistent improvement in earnings. Northwest Airlines turned in a $1,256,233 first-half profit on trans-Pacific service, and TWA earned $773,766 net.

But American Overseas Airlines had an $877,000 net loss, United was $995,000 in the red on its West Coast-Hawaii route; Colonial dropped $66,000 on its Bermuda operations, and Braniff lost $161,000 on its Latin American services. (Pan American Airways' earnings continue to be clouded by mail pay uncertainties.)

▶ **Excess Profits**—While Northwest's profits on international routes partially offset domestic losses early this year, it is likely that the carrier's Pacific route will not pay off so handsomely in the future. The Civil Aeronautics Board has ordered the carrier to show cause why its Pacific mail revenues shouldn't be cut by more than $4.3 million annually starting Aug. 1, 1950.

If steadily rising costs and threatened labor disputes don't slash airline earnings during the remainder of the year, CAB is likely to turn up other instances where mail rates need downward revision. Thus the same mechanism which saved a number of carriers from bankruptcy between 1946 and 1948 will be used with increasing frequency to prevent an "excessive rate of return" on airline investments.

Mexican Airlines Make Freight Pact

(McGraw-Hill World News)

Mexico City—Mexico's three top domestic airlines have agreed to accept air freight consigned for any one of them.

Under the agreement, which went into effect this week, air express shipments may be given to the offices or pickups of any one of the three who will forward it by the proper line. This covers most Mexican air points.

The lines involved are Cia. Mexicana de Aviacion (PanAm affiliate), Lineas Aereas Mexicanas S. A. (United Air Lines affiliate), and Aeronaves de Mexico.

SHORTLINES

▶ **Air Express**—Shipments for the first six months of 1950 increased 23.3 percent over shipments in the same period for 1949, the Air Express division of Railway Express Agency reports. Nearly 2 million shipments were carried on U. S. certificated airlines, with gross revenues of $9,197,594, up 25 percent over the same period a year ago.

ALUMINUM FABRICATING SERVICE

Don't buy a Fruit Stand just to get a Pear!

No costly scrap or reject losses for you—when Reynolds makes your aluminum stampings and formed parts

YOU make savings from start to finish, when you let Reynolds handle your aluminum fabricating. Scrap and reject savings alone are mighty important. It has accounted for as much as 75% of the metal on some parts. But large amounts or small, scrap costs you time and money. Costs all industry (and you) vast amounts of metal that are kept out of circulation. When Reynolds makes your parts scrap goes right back into the melting pots.

That's just *part* of the picture. Here are advantages you get: ① reduced material inventory; ② release of valuable floor space; ③ delayed material billing; ④ lower cost for material handling; ⑤ larger plant capacity; ⑥ no rejects; ⑦ no scrap handling; ⑧ more time for sales planning.

Write for Details

Ask for free folder that explains this unique fabricating service. Or call the Reynolds Sales Office listed under "Aluminum" in your classified telephone directory. Reynolds Metals Company, Parts Division, 2000 South Ninth Street, Louisville 1, Kentucky.

REYNOLDS *Lifetime* ALUMINUM

A COMPLETE ALUMINUM FABRICATING SERVICE INCLUDING
BLANKING • EMBOSSING • STAMPING • DRAWING • SPINNING
FORMING • ROLL SHAPING • TUBE BENDING • WELDING • FINISHING

REYNOLDS METALS

TECO

"THE AIRLINE SEAT"

chosen by

Capital AIRLINES

Constellations

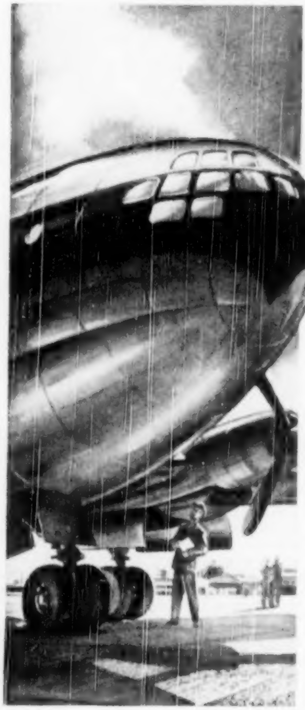
STANDARD SEATS for first class travel

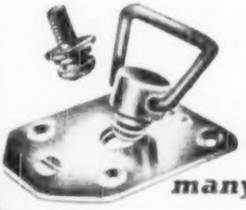
FOLDING SEATS combination passenger and cargo operations

HIGH DENSITY SEATS for air coach travel

Transport Equipment Co.

2505 NORTH ONTARIO STREET, BURBANK, CALIFORNIA





How many ways can you use WEDJIT?

Convenient *Adams Rite* WEDJITS were developed primarily to speed conversion from cargo to passenger operation, and to simplify plane maintenance. Seats or cargo tie-downs, equipped with identical studs, snap into floor plates under hand pressure . . . release instantly by a turn of a screw-head. WEDJITS have since proved ideal for securing electronic gear, galleys and other interchangeable equipment. You get more-than-adequate holding strength . . . increased efficiency.

Monadnock, with a wealth of fastening experience, also has reliable development and production facilities available to other manufacturers of quality products. Your inquiries are invited.

MONADNOCK MILLS San Leandro California

subsidiary of UNITED-CARR FASTENER CORP.

▶ **British Commonwealth Pacific Airlines**—Is now offering a "breakfast in bed" service as part of its DC-6 sleeper plane operation across the Pacific from Vancouver and San Francisco to Sydney and Auckland.

▶ **British European Airways**—Reports a big summer vacation and tourist airlift nicknamed the "bucket and spade" service, on its Channel Island runs. In eight days, a total of 10,517 passengers were flown in and out of Jersey, Guernsey and Alderney Islands, in 960 landings and takeoffs. Twenty-eight passenger Dakotas (DC-3s) and smaller Dragon Rapides planes were used. Peak day saw handling of 2101 passengers at Jersey airport, plus 715 on the two smaller islands.

▶ **Capital Airlines**—Reported an operating profit of $614,560 for the six months ending June 30, as compared to $345,329 for the same period the previous year. Net income after taxes was $300,260 in the first half of 1950 as compared to $92,055 for the comparable period in 1949. The increase was due to step-ups in passenger revenue (from $8,918,070 to $9,604,151) and in cargo revenue (from $928,419 to $1,118,913). Air mail pay declined $178,684 in the same period, despite an increase of almost 40 percent in the ton miles of mail carried.

▶ **Colonial Airlines**—Passenger traffic to Bermuda in July showed an increase of 159 percent over the July 1949 traffic, with early indications showing a comparable or even higher Bermuda passenger traffic increase for August. The traffic boosts are attributed to Colonial's fare reductions, plus lowering of hotel and guest house rates at the resort.

▶ **Pan American World Airways**—Has stepped up its low-cost tourist Clipper service between Miami and Panama by adding a fifth weekly roundtrip, continuing through Sept. 16, the peak vacation period for Canal Zone residents.

▶ **Pioneer Air Lines**—Has been awarded a Highest Merit Award by Financial World Magazine for its 1949 annual report.

▶ **Sabena**—Was to begin helicopter airmail service in Belgium last week with a four-hour roundtrip starting and ending at Brussels. Mail pickups were scheduled at eight communities, using football fields and other relatively small areas as landing facilities.

▶ **Trans World Airlines**—Plans to start New York-Kansas City service Sept. 1 with Martin 2-0-2As. There will be two westbound flights and two eastbound flights daily. Frequency will be increased to 12 schedules Sept. 24. First schedules will serve Philadelphia, Pittsburgh, Columbus, Dayton, Chicago and Kansas City. Later Indianapolis, Cincinnati, Louisville and St. Louis will be served.

▶ **United Air Lines**—Chalked up new records for July, 1950, with an estimated 150,411,000 revenue passenger miles, a gain of 8½ percent over July, 1949, and only 2½ percent below the record of June, 1950,—busiest month in the 24 years of the airline's operation.

▶ **West Coast Airlines**—Reports completion of its program to bring all-weather instrument operations to all its terminals, with CAA approval of new let-down procedures at McMinnville and Albany-Corvallis airports. Heretofore restricted to 3000-ft. ceilings and unlimited visibility. New minimums of 1000 ft. and one mile have been approved, and further reduction in ceiling minimums are expected within six months.

CAB SCHEDULE

Aug. 28—Hearing on control and relationships of Kessler, Robin Airways, et al. (Docket 3343)

Aug. 28—Hearing on CAB's enforcement action against Air Transport Associates. (Docket 4265)

Sept. 11—Hearing on Lehman Brothers' interlocking relationships case involving partners of firm holding airline directorships. (Docket 3665 et al)

Sept. 11—Hearing on enforcement proceeding involving interlocking relationships between Arrow Airways, Inc., and California Arrow. (Docket 4267)

Sept. 11—Hearing on applications of Aerovias "Q" and Compania Cubana de Aviacion for Havana-Washington-New York foreign air carrier permits. (Dockets 3213 and 4187)

Sept. 18—Hearing on TWA and American Overseas Airlines requests to suspend service at Philadelphia on trans-Atlantic routes. Postponed from Aug. 7. (Docket 4228 et al)

Sept. 21—Prehearing conference on American Overseas Airlines' mail rate. (Docket 1666)

Sept. 25—Hearing on Board investigation of all-expense fares of Eastern Air Lines et al. (Docket 4443 et al)

Sept. 26—Hearings on Mid-Continent Airlines' application to have its Route 80 certificate (Tulsa-Houston) made permanent. (Docket 2652)

Oct. 2—Hearing on renewal of Frontier Airlines' feeder certificate and service suspension at two United Air Lines' stops in the area. (Docket 4340)

Oct. 9—Hearing in Latin American Air-freight case. (Docket 2888 et al)

Oct. 16—Hearings on Los Angeles Airways' application for renewal of its helicopter mail-cargo certificate and for additional authority to carry passengers. (Docket 3100)

Dec. 11—Hearing on Board investigation of West Coast passenger fare structure. (Docket 4386)

Jan. 8, 1951—Hearing in Big Four mail rate case and CAB investigation of the carriers' economy and efficiency. (Docket 2849 et al)

One of the new Boeing B-47 Stratojet series of swept-wing bombers. An average of 730 Tinnerman fasteners are used in its assembly.

BOEING . . .

one of the 38
aircraft manufacturers
currently specifying

TINNERMAN
Speed Nuts*

Because:

1. SPEED NUTS weigh less than any other self-locking aircraft fasteners.
2. They're easier to install.
3. They're easier to remove for servicing.
4. Provide great resistance to vibration loosening.

Thousands of SPEED NUTS*, SPEED CLIPS*, and SPEED CLAMPS* are designed specifically for aircraft applications, and provide lower costs, increased production, and improved product quality. For more details, phone your Tinnerman representative—he's listed in major city directories. Tinnerman Products, Inc., Cleveland, Ohio. *In Canada:* Dominion Fasteners Ltd., Hamilton. *Distributor:* Air Associates, Inc., Teterboro, New Jersey.

TINNERMAN
Speed Nuts
*Trade Mark Reg. U. S. Pat. Off.

FASTEST THING IN aircraft FASTENINGS

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE

$1.20 a line, minimum 4 lines. To figure advance payment count 5 average words as a line.

INDIVIDUAL EMPLOYMENT WANTED advertising rate is one-half of above rate, payable in advance.

PROPOSALS $1.20 a line an insertion.

INFORMATION

BOX NUMBERS in care of any of our New York, Chicago or San Francisco offices count 1 line additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED RATE

The advertising rate is $12.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured 7/8 inch vertically on one column, 3 columns—30 inches—to a page.

NEW ADVERTISEMENTS received Friday will appear in the issue mailed the following Friday subject to limitations of space available

A. W.

ENGINEERS
AIRPLANE & HELICOPTER

Positions available for men with Engineering Degree and experience in airplane or helicopter engineering particularly in:

- AERODYNAMICS
- DESIGN
- FLUTTER & VIBRATION
- STRESS ANALYSIS
- FLIGHT TEST ENGINEERING
- INSTRUMENTATION DESIGN
- HANDBOOK WRITERS AND ILLUSTRATORS

Send resume of training and experience, date available, and references. Those presently employed by aircraft manufacturers, please do not apply.

McDONNELL AIRCRAFT CORPORATION
POST OFFICE BOX 516
ST. LOUIS (3) MISSOURI

ENGINEERS
RESEARCH and DEVELOPMENT

Career Positions
for
Top Engineers and Analysts

SENIOR ELECTRONICS AND ELECTRONICS ENGINEERS—B.S. or M.S. degree, 2 to 5 years experience in radar, [illegible], pulse, video or [illegible] circuit design.

DIGITAL COMPUTER DESIGN ENGINEERS

SENIOR ELECTRO-MECHANICAL ENGINEERS—Degree and at least 4 years experience in servo mechanisms, analogue computers, special [illegible] or [illegible] design.

Submit resume outlining experience to:

The GLENN L. MARTIN CO.
Employment Department
BALTIMORE 3, MARYLAND

W-A-N-T-E-D

Aerodynamic, Vibrations, and Senior Layout Engineers—Must have minimum of five (5) years aircraft experience, preferably in helicopters. Please submit full details concerning education, background, experience and capabilities. Address: Chief Engineer, Kellett Aircraft Corporation, Central Airport, Camden 11, New Jersey.

Kaman Aircraft Corporation, Windsor Locks, Connecticut requires following experienced engineering personnel to handle new development program:

Aircraft Mechanical Design specialist. Helicopter rotor stress analyst. Layout draftsmen and detailers. Knowledge of AN drafting standards desirable. Give details first letter.

ENGINEERING
TEST PILOT

For established flight research organization. Minimum requirements, 2500 hours commercial-instrument single & multi engine land. B.S. in engineering required.

BOX AW 1281 221 W 41 ST, NY 18.

FLIGHT CREW MEMBERS

Pilot Captains—ATR, Co-pilots, CAA Flight Engineers, Navigators and Radio Operators, Pursers, Stewardess and operations personnel. Now accepting applications for present and future openings. Local and overseas assignments. Apply or send complete resumes.

Gotham Personnel Service
55 W. 42nd St. N. Y. 18, N. Y.
[illegible]

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS WANTED

AIRLINE TRANSPORT Pilot — [illegible] PW-[illegible], Aviation Week.

[illegible] GRADUATES [illegible] Write [illegible]

FOR SALE

Two Excellent Executive Lodestars
[illegible]

11 passenger
[illegible]

Used Propeller Assemblies
[illegible] PW-[illegible], Aviation Week.

SCHOOLS

Rising Sun *SCHOOL OF AERONAUTICS*
ESTABLISHED 1930
"Built Upon the Success of its Graduates"
GOVT. C. A. A. and VETERANS APPROVED
ENROLL NOW FOR NEXT CLASS
Write for Illustrated Catalog
2206-16 E. HUNTINGTON ST., PHILA., PA.

PROBLEMS ! ! ! ?

Consult us on Aircraft Conversion
Specialists in "Rework"—"Conversion"
"Modifications" of all types of Aircraft

◆

—EXECUTIVES—

Interior plushing & design our specialty

ACCESSORIES

Electrical Radio Seating
Upholstery Re-License Buffet

Contact us today—don't leave a question unanswered. Write or phone Hartford, Connecticut 5-3202

TALOA OVERHAUL
BRADLEY FIELD
HARTFORD, CONN.
(45 Min. via Air from New York City)
C.A.A. APPROVED
REPAIR STATION #3557

TARIFF PUBLICATION

For Certified or Irregular Freight or Passenger Air Carriers

[illegible] guarantee their acceptance. [illegible]

[illegible]

CARMICHAEL TRAFFIC CORPORATION
355 South Los Angeles Street
Los Angeles 14, California Phone Trinity 5311

ARMAMENT ITEMS
A-26 & B-25 SPARES
ELECTRIC & HARDWARE ITEMS
FUEL—OIL—HYD. SYSTEMS
BOX 4035 D. MOODY & CO. TULSA, OKLA.

WANTED

"AN HARDWARE WANTED"

Job lots of fittings, bolts, nuts, elastic stop nuts, rivets, washers, terminals, clamps and bearings.

W-2565, Aviation Week
330 W. 42nd St., New York 18, N. Y.

★

Aeronautical ENGINEERS DESIGNERS and LAYOUT DRAFTSMEN

GOOD opportunities exist now for experienced and energetic engineering personnel seeking security and advancement . . . with the fastest growing builder of military helicopters . . . now undergoing long range expansion, keyed to present military program, with commercial potential. PLEASANT suburban working conditions in new and modern plant. Adequate and ample housing available. Good transportation facilities. Congenial organization featuring progressive management . . . providing vacation, insurance and other benefit programs.

Also

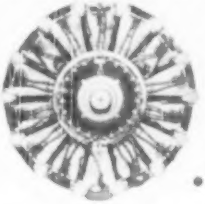
AIRCRAFT ELECTRICAL LAYOUT MEN

PARTICULARLY challenging positions available in the electrical group. Four to six years' experience in the aircraft industry and a bachelor's degree from an engineering college are required. Must be familiar with installation and layout of switch and circuit breaker panels, junction and control boxes, and other aircraft electrical and electronic equipment. Supervisory experience desirable.

PIASECKI
Helicopter Corp.
Morton, Pa. Near Phila.

FOR EXCHANGE!

C. A. A.-APPROVED OVERHAULED ENGINES



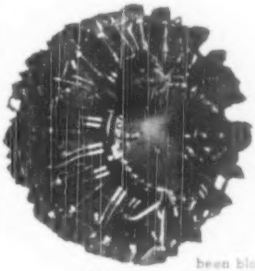
R-1830	$2200
R- 985	$1400

ZERO TIME SINCE OVERHAUL

- Rebuilt within factory specifications.
- Block tested in modern test cells.
- Equipped with chrome plated ignition harness and metallized cylinders.
- Guarantees available to Corporation users covering the entire engine service life.
- Engines available immediately from stock. Complete sets of accessories are also available at very reasonable cost.

C.A.A. APPROVED STA. #168

DALLAS AERO SERVICE
3300 LOVE FIELD DRIVE DALLAS, TEXAS—D-4-2641



NEW R-2800-75

price $2500.00

These engines are 00:00 time since factory new and have had ACES C.A.A. approved outside in lubrication system blower to thrust plates incorporated. They have also been block tested in our modern test cells and have been prepared for long term storage.

R-2600—New $1500.00

C.A.A. APPROVED OVERHAULS

• R-1830-92 without exchange	$2,500.00
Above with exchange	$2,290.00
• R-1830-65-92 Conv. less carb	$1,850.00

All Engines Complete with Form 60-B

ALL WORK AND ENGINE SALES CARRY OUR 100 hr. WARRANTY

AIR CARRIER ENGINE SERVICE, Inc.
C.A.A. Approved P. O. Box 1388
Repair Station No. 3604 Miami, Florida
Cable "ACENGSER"

ACES

LUXURY SAFETY

AIR FRANCE
French National Airline, 683 Fifth Ave., N. Y.
offers for sale two

CATALINA — PBY-5A
Private compartments accommodate 20 luxurious seats
Deluxe Galley — Full long-range radio equipment

CAA CERTIFICATED — READY FOR OPERATIONS
One with 1491 SM 1092 since conversion 335 SO
R1830-92 zero time SO. 335 SM
Converted By
CONSOLIDATED VULTEE AIRCRAFT CORPORATION

AIRCRAFT & ELECTRONIC EQUIPMENT

As a leading supplier we offer a complete line of

BRAND NEW INSTRUMENTS

- FLIGHT & NAVIGATION INSTRUMENTS
- ENGINE INSTRUMENTS
- AUTOMATIC PILOTS
- INVERTERS
- AUTOSYNS
- PRECISION AUTOSYNS
- RATE GENERATORS
- SYNCHROS
- ALNICO FIELD MOTORS
- GYROS
- A.C. MOTORS
- D.C. MOTORS
- SERVO MOTORS
- TORQUE UNITS
- TORQUE AMPLIFIERS
- FREQUENCY METERS
- BLOWER ASSEMBLIES

Write for complete listings

All Instruments May Be Purchased
C.A.A. Certified
U. S. Export License-2140

WUX Great Neck, N. Y.

INSTRUMENT ASSOCIATES
37 E. Bayview Ave., Great Neck, N. Y.
Tele: IMperial 7-1147

NEW ALLISON ENGINE PARTS

ALLISON ENGINES
Models 81, 83, 85, 93, 111, 113 & 117
NEW, NTSO & Used

ETHYLENE GLYCOL
Non-Corrosive
Anti-freeze & cooling liquid
for Aircraft Engines
Specification AN-E-2C

FOREIGN INQUIRIES INVITED

MORCO TRADING CORPORATION
354 South Spring Street
Los Angeles 13, California USA
Exporters of Aircraft Parts
CABLES: MORCO LOSANGELES

25 NEW R2800-75 CERTIFIED ENGINES

THESE ENGINES TESTED AND CERTIFIED BY GRAND CENTRAL AIRPORT CO., GLENDALE, CALIF.

C.A.A. Airworthiness 49-46-2 Complied With

For Full Particulars
Write

CHARLES GROSSO
432 Vine St. Modesto, Calif.

FOR SALE

West Coast's largest stock of Douglas, Constellation and C46 parts. P&W, Wright engine parts and accessories.

Complete stock AN hardware, fittings, electrical parts, etc. Plus a [illegible] inventory of new and surplus parts. Complete catalog on request. WANTED: Complete inventories or individual items

COLLINS ENGINEERING COMPANY
[illegible] Washington Blvd., Culver City, Calif.

A Complete Line of New and Used Electronics Equipment

DAVE RUMPH CO.

DAVE RUMPH CO.
"Aviation's Leading Electronics Supply House"
P. O. Box 4178
Ft. Worth 6, Tex.
NOrthcliffe 4863

FOR SALE

TWIN P&W BEECHCRAFT NC 57198

Full conversion from AT-11 with long nose and engine nacelles. All radio with ILS, ADF, VHF, dual instruments. Standard broadcast receiver in plush cabin, 3 reclining chairs with lounge. Excellent corporation or airline charter aircraft. Contact John J. Maggi.

Security Parachute Co., Oakland Airport, Calif.

FOR SALE:

Cessna T50 Ambulance Aircraft

Completely equipped for ambulance duty. Custom built conversion at cost of $12,500.00. Has all medical equipment and appliances for patients care. White in and out. Never out in weather—always stored. Carries N/S ACC. Lic. through Sept. Will relic. till Sept. 1 '51. 2 Jacobs 245 engines. L-98 hrs. R-353 hrs. Total A/C time 714 hrs. Heavy wing type 5700 lbs. Has complete RF equipment plus gyro instruments, communication & many extras. In perfect condition. Rated as finest 53 air ambulance in U. S.

For Quick Sale $4950.00

Contact: DICK BROWN
35 W 33 NYC; Tel. Bryant 9-9891

FOR SALE

1—Type A-1-RR ONSRUD HIGH SPEED RADICAL ARM ROUTER. Motor Driven New 1942.
1—#73 Heald Grinder. AC Motors.

VICTOR MACHINERY COMPANY
135 So. Clinton St Chicago 6, Illinois

B-29 HANGAR *FOR SALE*

StranSteel hangar and shop, approx. 40,000 square feet, stressed for uniform building code. Bargain for immediate shipment.

477 E. Providencia Ave., Burbank, California

DOUBLE TEST CELL

For testing aircraft engines up to 3,000 HP
Used Excellent Condition
Available for immediate delivery

AMERICAN TRANSCONTINENTAL LTD.
52 Wall Street Bowling Green 9-1450
New York, N. Y.

Dealers — New and Used Government Surplus Materials — All Materials Guaranteed as Represented.

Inquiries Invited

JAMES S. SPIVEY, INC.
500 Southern Bldg. Washington, D. C.

WHAT'S NEW

Telling the Market

Airlines officials and plane makers should be interested in newly released **Aircraft Seat Manual** prepared by Burns Aero Seat Co., permitting insertion of monthly bulletins to keep volume up-to-date. Write company at Burbank, Calif. . . . **Aviation Catalog** published by Purolator Products, Inc., is handy reference describing various aircraft fuel, oil, air and hydraulic filters produced by the concern. Write Purolator at Rahway, N. J. . . . Overseas airline executives and flight crews can obtain pamphlet describing CAA's services to such carriers and crews. It's entitled **Facilities Directory** and can be obtained from New York Overseas Foreign Aeronautical Communications Station, LaGuardia Field, N. Y. . . . Two technical bulletins on properties of high-nickel alloys have been issued by The International Nickel Co., Inc. **Booklet T-7** covers engineering properties of Inconel and Inconel X. **Bulletin T-9** deals with K and KR Monels. Write Technical Editor of the company at 67 Wall St., New York 5, N. Y. . . . **Certified Job Study No. 97** is aimed at freight and cargo carriers showing how Towmotor products reduce terminal storage and save materials handling time. Write Towmotor Corp., 1226 E. 152 St., Cleveland, Ohio. . . . Administrative management will be interested in booklet **How to Increase Profitable Sales** telling how machines and systems may be used to compile sales analysis facts and utilize them for checking sales by individual accounts, by prospects, by salesmen and by territory. Write Remington Rand, Inc., 315 Fourth Ave., New York 10, N. Y. . . . **Catalog 10** on Powercon vibrator converters covers 22 models in five different types. Cornell-Dubilier Electric Corp., So. Plainfield, N. J. . . . **Bulletin 601A** describes Type 150 VD medium impact shock machine for testing airborne electronic equipment. Available from Barry Corp., 179 E Sidney St., Cambridge, Mass.

Aircraft Courses

Courses in several fields of mechanical technology, applicable to aircraft design, are to be offered during the fall semester of the Extension Division, Institute of Applied Arts and Sciences, State University of New York.

Mechanical courses are scheduled for one or two evenings per week for 15 weeks. All courses are approved by the Veterans Administration.

Registration dates are Sept. 13-19. The Institute is at 300 Pearl St., Brooklyn.

For Savings

- Save Money, Floors, Equipment and Time by using

DARNELL CASTERS & WHEELS

Free MANUAL

DARNELL CORP. LTD.
LONG BEACH 4, CALIFORNIA
60 WALKER ST., NEW YORK 13, N.Y.
36 N. CLINTON, CHICAGO 6, ILL.

ADVERTISERS INDEX AVIATION WEEK AUGUST 28, 1950

Adel Precision Products Corp.	30
Agency—The McCarty Company	
Airborne Accessories Corp.	8
Agency—Lewis Advertising Agency	
Aircraft-Marine Products, Inc.	34
Agency—Renner Advertisers	
Airwork Corporation	23
Agency—J. Branch Briggs Adv.	
Allison Division, GM Corp.	Fourth Cover
Agency—Kudner Agency, Inc.	
B. H. Aircraft Co., Inc.	33
Agency—Harold Marshall Adv. Co.	
Capital Airlines	5
Agency—Lewis Edwin Ryan Adv.	
Chicago Pneumatic Tool Co.	7
Agency—G. M. Basford Co.	
Collins Radio Company	20
Agency—W. D. Lyon Co., Inc.	
Commercial Research Laboratories, Inc.	22
Darnell Corporation Ltd.	49
Agency—Riley Advertising Service	
DeClerk Company	25
Agency—West Marquis, Inc.	
Eclipse-Pioneer Div., Bendix Aviation Corp.	19
Agency—MacManus, John & Adams, Inc.	
Fenwal, Incorporated	30
Agency—James Thomas Chirurg Co.	
Goodrich Co., The B. F.	3
Agency—Batten, Barton, Durstine & Osborn, Inc.	
Hi-Shear Rivet Tool Co., The	31
Agency—John T. Hall Co.	
Hydro-Aire, Incorporated	30
Agency—John H. Riordan Co.	
Industrial Cold Company	42
Lewis Engineering Co., The	42
Lord Manufacturing Company	Front Cover
Agency—Erwin, Wasey & Co., Ltd.	
McGraw-Hill Book Co., Inc.	49
Micro Switch Corporation	35
Agency—Hamilton Adv. Agency, Inc.	
Monadnock Mills	44
Agency—Allen & Richards, Inc.	
Pacific Airmotive Corporation	Third Cover
Agency—Faris Company, The	
Radio Receptor Co., Inc.	47
Agency—Walter J. Zimmerman Assoc.	
Reynolds Metals Company	43
Agency—Griswold Eshleman Co., The	
Roebling's Sons Co., John A.	4
Agency—Beatty & Oliver, Inc.	
Ryan Aircraft Corporation	28
Agency—Barnes Chase Company	
Ryerson & Son, Inc., Joseph T.	41
Agency—Aubrey, Moore & Wallace, Adv.	
Searchlight Section	45, 47, 48
Shell Oil Company	10
Agency—J. Walter Thompson Co.	
Texas Company, The	6
Agency—Erwin, Wasey & Co., Inc.	
Tinnerman Products, Inc.	45
Agency—Meldrum & Fewsmith, Inc.	
Transport Equipment Company	44
Turco Products, Incorporated	33
Agency—Botsford, Constantine & Gardner Adv.	
Westinghouse Electric Corp.	Second Cover
Agency—Fuller & Smith & Ross, Inc.	
Young Radiator Company	41
Agency—Western Adv. Agency	

PROFESSIONAL SERVICES—
First issue of each month

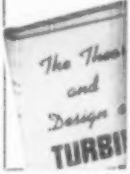
SEARCHLIGHT SECTION
(Classified Advertising)

EMPLOYMENT	
Positions Vacant	45, 47
Positions Wanted	45
Employment Services	45
SPECIAL SERVICES	46
EDUCATIONAL	
Schools	47
PLANES—EQUIPMENT (Used or Surplus New)	
For Sale	47, 48
WANTED	
Equipment	46

Supersonic Aerodynamics

1. This timely book of unusual interest [illegible] basic for further theoretical investigations of supersonic aerodynamics. It develops the necessary mathematical ideas in detail . . . covers everything from the thermodynamic preliminaries and the divergence theorem . . . through the graphical computational method of characteristics for axially symmetric supersonic flow . . . to [illegible] of adiabatic and shock flow in two-dimensions. Examples accompany each chapter, ranging from simple numerical problems to the development of theoretical results. By E. R. C. Miles, Research Mathematician, Institute for Cooperative Research. 255 pages, 109 illus., $4.00

The Theory and Design of Gas Turbines and Jet Engines



2. A new book that gives the many examples of the application of aerodynamic and "gas dynamic" theory to actual design problems. Discusses parameters affecting performance characteristics of turbines and limitations imposed by design, materials, etc. Covers gas flow, jet propulsion, [illegible] regenerators, etc. By E. Vincent, U. of Michigan. 606 pages, 283 illus., $7.50

Aluminum and Magnesium Design and Fabrication

3. [illegible] By H. Earl Schafer, Glenn L. Martin Co. 549 pages, 467 illus., $7.50

Structural Plastics

4. A factual [illegible] of the structural characteristics of plastics [illegible] structural [illegible] [illegible] of plastic structures. This [illegible] structural [illegible] plastics, [illegible] constructions, and sandwich materials . . . the new and recent developments in the industry. By H. C. Engel, Charles B. Hemming and H. R. Merriman. 301 pages, 50 illus., $4.50

SEE THESE BOOKS 10 DAYS FREE

McGRAW-HILL BOOK CO., Inc.
330 W. 42nd St., New York 18

[illegible]

1 2 3 4

Name
Address
City Zone State
Company
Position AW-8-28-50
This offer applies to U. S. only.

EDITORIAL

Mr. Ryan and His Voting Record

Some propagandists contend that you can make the people believe anything if you repeat a statement often enough. For some time now we have been noting occasional but persistent references by one or two writers to the effect that the Civil Aeronautics Board's vice chairman, Oswald Ryan, is a "friend of Pan American," or a "long-time advocate of the chosen instrument."

In our book, the acid test of a public official's views is his voting record. The other day, we asked Mr. Ryan for the details of his voting record involving cases which did or could affect PanAm and/or the chosen instrument.

In the public interest, we are glad to devote space on this page to that record, without extraneous opinion or comment. When you have read it, you may decide for yourself. The record follows:

1. American Export Airlines Case (July 12, 1940): This is the earliest case involving competition to Pan American across the North Atlantic. Mr. Ryan voted to award the certificate of convenience and necessity to American Export Airlines to compete with PanAm.

2. On July 7, 1941, Mr. Ryan voted to deny the application of Pan American for the route between Los Angeles and Mexico City.

3. On July 1, 1945, in the important North Atlantic Route Case involving competition across the North Atlantic, Mr. Ryan voted to award American Export Airlines (whose certificate was expiring) and TWA certificates to compete with PanAm across the Atlantic.

4. On June 1, 1945, Mr. Ryan voted to deny the application to extend Pan American to Paris and Rome.

5. On May 17, 1946, Mr. Ryan voted to certificate Eastern Air Lines rather than Pan American for the route from New Orleans to Mexico City.

6. On the same date, he voted to certificate Colonial Airlines to operate a route from the United States to Bermuda in competition with Pan American.

7. On the same date he voted to deny Pan American's application for the route from Houston to the Canal Zone, in competition with the route awarded to Braniff.

8. On the same date, he voted to certificate Chicago and Southern to operate a route between New Orleans, San Juan and Caracas, Venezuela, in competition with Pan American.

9. On the same date he voted to certificate National Airlines to compete with Pan American on a route between Miami and Havana.

10. In the Latin American Case (May 17, 1946), Mr. Ryan and Mr. Branch, constituting one-half of the Board membership at that time, voted to ask Congress for legislation to divest Pan American control of Panagra and to extend Panagra into the United States to compete with Pan American as an independent air carrier for the South American traffic. They voted against placing a third carrier in South America on the ground that there was not sufficient traffic for three carriers. The two remaining members of the Board voted for authorizing a third carrier. The President then issued a directive to the Board to certificate a third carrier.

11. In the Hawaiian Case (May 17, 1946), Mr. Ryan voted to certificate United Air Lines between San Francisco and Honolulu in competition with Pan American, and in a separate opinion also urged the certification of Hawaiian Airlines for a service between Los Angeles and Honolulu in competition with Pan American.

12. On June 14, 1946, Mr. Ryan voted to deny Pan American's second application for authority to serve Paris and Rome.

13. In a supplementary decision (Nov. 19, 1946), Mr. Ryan voted to deny Pan American's petition for reconsideration of its decision of June 14, 1946, to serve Paris and Rome. In the same case, he voted to deny Pan American's request to serve by exemption certain points certificated to TWA during such time as Pan American was unable to serve its certificated points in the Balkans.

14. On June 20, 1946, in the important Pacific Case, Mr. Ryan voted to certificate Northwest Airlines to compete against Pan American across the Pacific to the Orient, granting Northwest Airlines a route which has a mileage advantage of 1816 miles over Pan American on trips between New York and Tokyo. Mr. Ryan, as acting chairman, cast the deciding vote which provided this competition to Pan American in the Pacific.

15. On Apr. 25, 1947, he voted to deny Pan American an exemption authorizing a direct service between San Juan, Puerto Rico and Caracas, Venezuela.

16. On Mar. 2, 1948, he voted to deny Pan American authority to operate directly between Shanghai and Manila in competition with TWA.

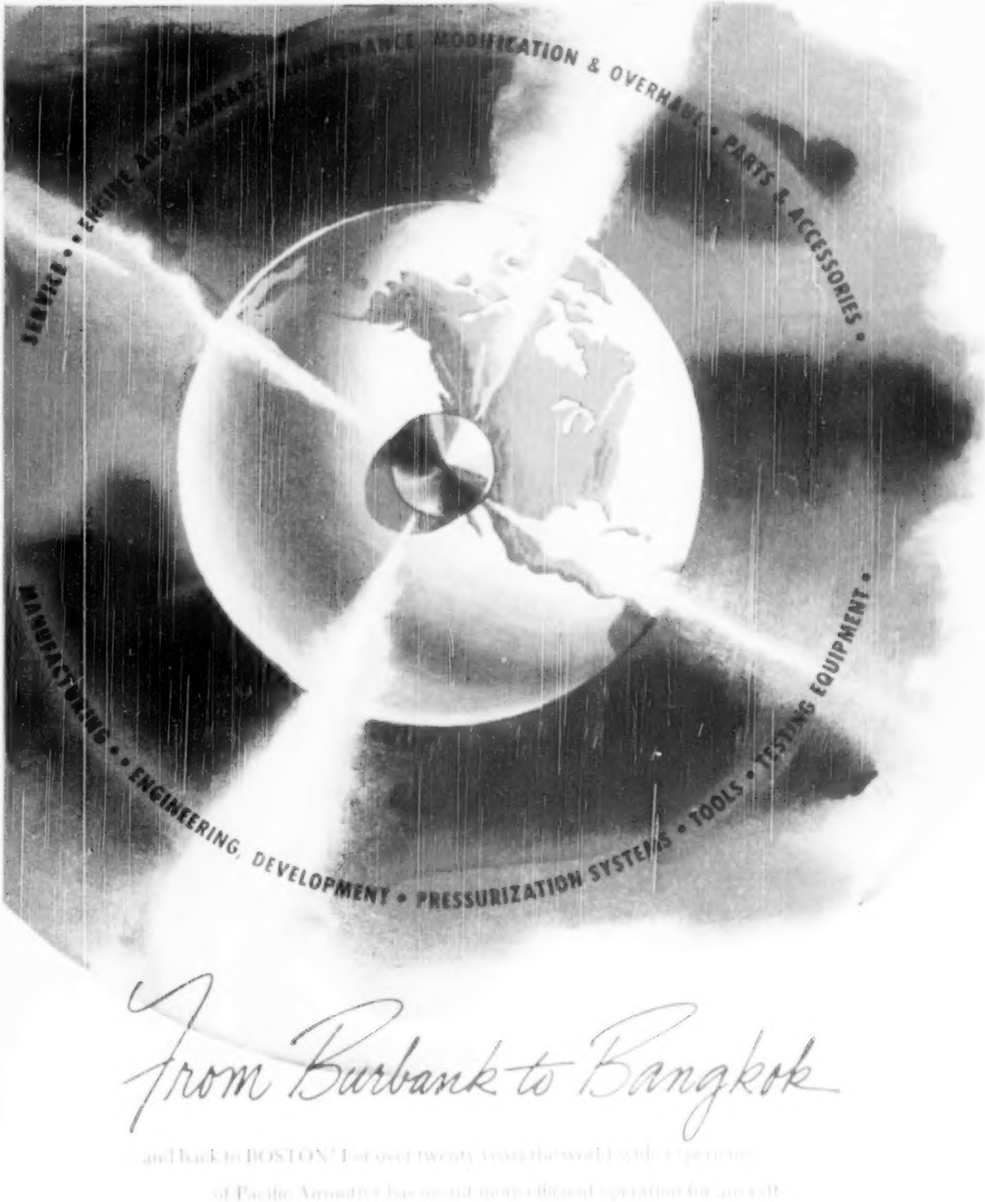
17. In the Pacific Northwest-Hawaiian Service Case (Mar. 15, 1948), Mr. Ryan voted for Pan American in preference to Northwest Airlines to operate a route between Seattle and Honolulu on the ground that Pan American certification would provide a single-carrier service from the northwest to Australia and New Zealand which would give competition to ANA, the Australian line which was operating without competition from Australia to an airport within 100 miles of Seattle. Northwest could not provide such benefits because it would be a stub-end operation ending at Honolulu.

18. In the Reopened Hawaiian Case, decided May 15, 1950, and approved by the President on August 3, 1950, he voted to certificate United Air Lines between Los Angeles and Hawaii in competition with Pan American.

19. On Jan. 24, 1950, Mr. Ryan, as acting chairman, voted to deny the application of Pan American and [illegible] Roma for authority to operate to Rome during the Holy Year. His vote was an essential vote making up the majority.

20. Mr. Ryan on May 17, 1950, in his dissenting opinion in the Pan American-American Overseas merger case, urged approval of the merger agreement, holding that "competition across the Atlantic would not be abandoned by the consummation of the proposed merger. Only the uneconomic and wasteful phases of the existing competitive pattern would be abandoned."

21. On Aug. 1, 1950, he voted with the other members to deny Pan American the system of domestic routes within the United States in the Pan American Airways, Inc. Domestic Route Case. —Robert H. Wood


SERVICE • ENGINE AND AIRFRAME MAINTENANCE, MODIFICATION & OVERHAUL • PARTS & ACCESSORIES • TESTING EQUIPMENT • TOOLS • PRESSURIZATION SYSTEMS • ENGINEERING, DEVELOPMENT • MANUFACTURING •

From Burbank to Bangkok

...and back to BOSTON! For over twenty years the world-wide experience of Pacific Airmotive has meant more efficient operation for aircraft.

Write for complete information

PACIFIC AIRMOTIVE CORPORATION
Burbank, California
OTHER DIVISIONS AT
OAKLAND, SEATTLE, ANCHORAGE, KANSAS CITY, KANSAS AND LINDEN, N.J.

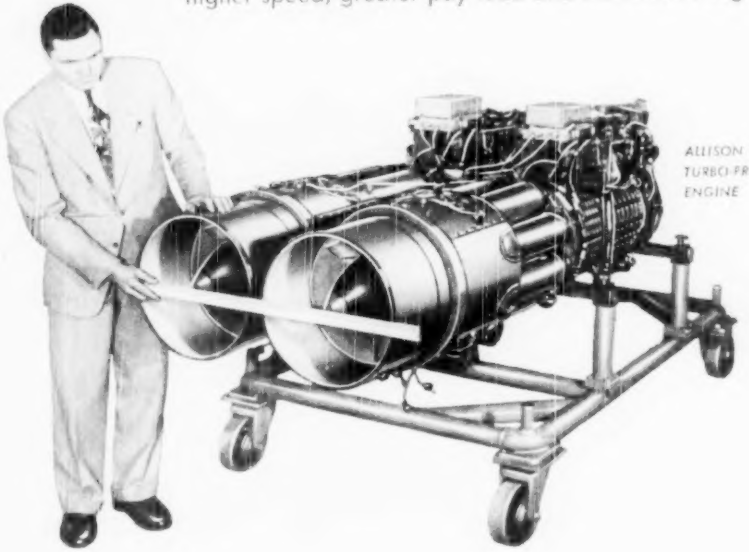
PAC

FIRST in high power, low weight and SPACE SAVING!

Under the sponsorship of the U. S. Navy Allison has developed a world's "first" in the new T40 Twin Turbo-Prop — an engine which, for its horsepower, is the lightest-weight and smallest-size propeller-type power plant ever cleared for flight.

5500 horsepower for only 2500 pounds in weight, with an exceedingly small diameter, the Allison T40 Twin Turbo-Prop engine saves valuable weight and space in the airplane.

These savings mean better aircraft performance in terms of higher speed, greater pay load and increased range.



ALLISON T40 TURBO-PROP ENGINE

Allison

DIVISION OF

GM GENERAL MOTORS

INDIANAPOLIS, INDIANA

BUILDER OF THE FAMOUS J33 AND J35 TURBO-JET AIRCRAFT ENGINES